STIC Search Report
EIC 1700

STIC Database Tracking Number: 154292

TO: John Maples **Location: 6C89** **Art Unit : 1745** **May 24, 2005** **Case Serial Number: 10/108148**	**From: Kathleen Fuller** **Location: EIC 1700** **REMSEN 4B28** **Phone: 571/272-2505** **Kathleen.Fuller@uspto.gov**

Search Notes

=> FILE REG
FILE 'REGISTRY' ENTERED AT 14:58:30 ON 24 MAY 2005

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 23 MAY 2005 HIGHEST RN 850992-92-6
DICTIONARY FILE UPDATES: 23 MAY 2005 HIGHEST RN 850992-92-6

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

****
* *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
* *
****

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> FILE HCAPLU
FILE 'HCAPLUS' ENTERED AT 14:58:35 ON 24 MAY 2005

FILE COVERS 1907 - 24 May 2005 VOL 142 ISS 22
FILE LAST UPDATED: 23 May 2005 (20050523/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

KATHLEEN FULLER EIC 1700 REMSON 4B28 571/272-2505

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=> D QUE L34
L7              SCR 2043
L12             SCR 1838 AND 2005
L14             SCR 1708
L16             STR

              Ak @12




Cb— Cb              G1—O—G2—O—G1
@8  @9               2   3   4   5   6


                Ak— SO3H
                @10 11

VAR G1=10/12
VAR G2=CB/8-3 9-5
NODE ATTRIBUTES:
CONNECT IS E2  RC AT  10
DEFAULT MLEVEL IS ATOM
GGCAT   IS UNS  AT   8
GGCAT   IS UNS  AT   9
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  10

STEREO ATTRIBUTES: NONE
L18       26582 SEA FILE=REGISTRY SSS FUL L16 AND L7 AND L12 AND L14
L19       15917 SEA FILE=HCAPLUS ABB=ON  L18
L26           8 SEA FILE=HCAPLUS ABB=ON  L19(L)?SULFO?(L)ELECTROLYT?
L27        2253 SEA FILE=REGISTRY ABB=ON  L18 AND 1-5/S
L28        1338 SEA FILE=HCAPLUS ABB=ON  L27
L29          10 SEA FILE=HCAPLUS ABB=ON  L28(L)ELECTROLYT?
L30          14 SEA FILE=HCAPLUS ABB=ON  L26 OR L29
L31       83833 SEA FILE=HCAPLUS ABB=ON  ?SULFO?(3A)(?ARYL? OR POLYPHENYL? OR
                BIPHENYL? OR PHENYL? OR ?NAPHTHA? OR AROM?)
L32         357 SEA FILE=HCAPLUS ABB=ON  L19 AND L31
L33           7 SEA FILE=HCAPLUS ABB=ON  L32 AND ELECTROLYT?
L34          17 SEA FILE=HCAPLUS ABB=ON  L30 OR L33


=> D L34 BIB ABS IND HITSTR 1-17

L34  ANSWER 1 OF 17  HCAPLUS  COPYRIGHT 2005 ACS on STN
AN   2005:340589  HCAPLUS
DN   142:393447
TI   Proton-conductive polymer electrolytes, their films and their production
IN   Nakano, Hiroko
PA   Sumitomo Bakelite Co., Ltd., Japan
SO   Jpn. Kokai Tokkyo Koho, 10 pp.
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query very broadly covers I, II or III.

III actually does not have a Sulfonic acid group which accounts for a few of the wierd answer.

KATHLEEN FULLER EIC 1700 REMSON 4B28 571/272-2505

CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005105176	A2	20050421	JP 2003-341992	20030930
PRAI	JP 2003-341992		20030930		

AB The The electrolytes having high proton conductivity and maintained strength in low water content comprises a polymer containing a large ring compound having ionic dissociation group. Thus, 3 parts lauryl methacrylate-4-vinylimidazole copolymer was mixed with a tetrasodium 5,10,15,20-tetra(4-sulfonatophenyl)porphyrin cobalt complex (obtained from tetrasodium 5,10,15,20-tetra(4- sulfonatophenyl)porphyrin and cobalt acetate) 10 g in dichloromethane 50 mL, cast on a glass plate and dried at 40° to give a film, which soaked in 1 mol/L HCl aqueous solution for 12 h, showing ion exchange capacity 3.07 meq/g.

IC ICM C08F026-06
ICS C08F008-00; H01B001-06; H01B013-00; H01M008-02
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 52
ST proton conductive electrolyte polymer film
IT Metacyclophanes
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(calixarenes; proton-conductive polymer electrolytes for proton-conductive membranes)
IT Membranes, nonbiological
(elec. conductive, proton conductive; proton-conductive polymer electrolytes for proton-conductive membranes)
IT Ionic conductors
(proton conductors; proton-conductive polymer electrolytes for proton-conductive membranes)
IT Ion exchange membranes
Polymer electrolytes
(proton-conductive polymer electrolytes for proton-conductive membranes)
IT Porphyrins
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(proton-conductive polymer electrolytes for proton-conductive membranes)
IT 118338-93-5
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(preparation of proton-conductive polymer electrolytes for proton-conductive membranes)
IT 61004-83-9P 110242-20-1P **849770-17-8P 849770-18-9P 849770-19-0P**
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(proton-conductive polymer **electrolytes** for proton-conductive membranes)
IT 72282-44-1P **849770-21-4P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(proton-conductive polymer **electrolytes** for proton-conductive membranes)
IT 71-48-7, Cobalt acetate 79-10-7, Acrylic acid, reactions 107-07-3, Ethylene chlorohydrin, reactions 825-90-1, Sodium p-phenolsulfonate

30525-89-4, Paraformaldehyde 39050-26-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(proton-conductive polymer electrolytes for proton-conductive membranes)

IT **849770-17-8P 849770-18-9P 849770-19-0P**
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(proton-conductive polymer **electrolytes** for proton-conductive membranes)

RN 849770-17-8 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α'',α'''-(5,11,17,23-tetrasulfopentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl)tetrakis[ω-hydroxy-, tetrasodium salt (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 849770-18-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α'',α'''-(5,11,17,23-tetrasulfopentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl)tetrakis[ω-[(1-oxo-2-propenyl)oxy]-, tetrasodium salt (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 849770-19-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, dodecyl ester, polymer with α,α',α'',α'''-(5,11,17,23-tetrasulfopentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl)tetrakis[ω-[(1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl)] tetrasodium salt (9CI) (CA INDEX NAME)

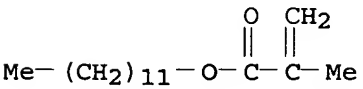
CM 1

CRN 849770-18-9
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C40 H32 O20 S4 . 4 Na
CCI PMS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 142-90-5
CMF C16 H30 O2



IT **849770-21-4P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(proton-conductive polymer **electrolytes** for proton-conductive membranes)

RN 849770-21-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, dodecyl ester, polymer with α,α',α'',α'''-(5,11,17,23-tetrasulfopentacyclo[19.3.1.13,7.19,13.115,19]octacos-

1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl)tetrakis[ω-[(1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl)] (9CI) (CA INDEX NAME)

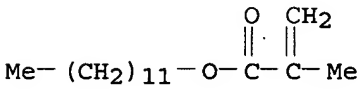
CM 1

CRN 849770-20-3
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C40 H32 O20 S4
CCI PMS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

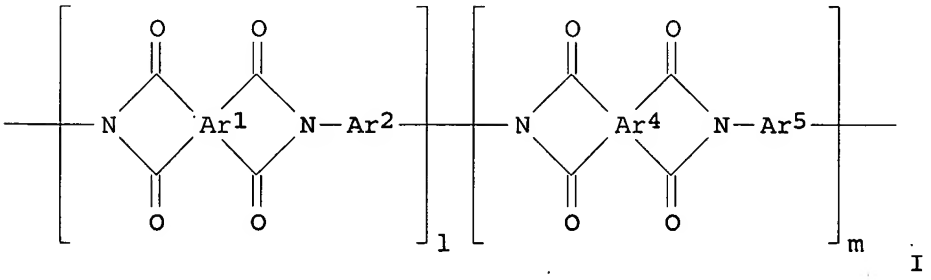
CRN 142-90-5
CMF C16 H30 O2



L34 ANSWER 2 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:280908 HCAPLUS
DN 142:339074
TI Crosslinked sulfonated polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells
IN Okamoto, Kenichi; Kita, Hidetoshi; Yamada, Nario; Yin, Yan; Hirano, Tetsuji; Kiuchi, Masayuki
PA Yamaguchi Technology Licensing Organization Ltd., Japan; Ube Industries, Ltd.
SO Jpn. Kokai Tokkyo Koho, 27 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2005082726	A2	20050331	JP 2003-317413	20030909
PRAI JP 2003-317413		20030909		

GI



I

AB The polyimides are crosslinked products of acid-terminated sulfonated polyimides I (Ar1, Ar4 = aromatic ring-containing tetravalent residue; Ar2 =

sulfo- or **sulfo** derivative-substituted divalent **aromatic** ring residue; Ar5 = **sulfo**- or **sulfo** derivative-free divalent **aromatic** ring residue; l ≥ 1; m ≥ 0) with ≥3-functional aromatic amines. The polyimides are manufactured by (1) reacting Mb mol of aromatic diamines with Ma mol of aromatic tetracarboxylic acids in mol. ratio Ma/Mb 1.03-1.5 in organic solvents to give organic solvent-soluble aromatic tetracarboxylic acid residue-terminated sulfonated polyimides, (2) adding ≥3-functional aromatic amines to the acid-terminated polyimide solns. at ≤100° to satisfy approx. equal mol of the terminal acid residues and the amino groups, and (3) heating the mixts. at 110-350° for removal of the solvents. Manufacture of films of the crosslinked sulfonated polyimides by casting or applying the mixts obtained by the above (2) process on supports and heating at 110-350° for solvent removal is also claimed. The polyimides have high ion exchange capacity and proton conductivity and improved water resistance, dimensional change in water absorption, and MeOH permeability.

IC ICM C08G073-10
ICS C08J003-24; H01B001-06; H01M008-02; H01M008-10; C08L079-08

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST crosslinked sulfonated polyimide **electrolyte** membrane fuel cell

IT Polymer **electrolytes**
(crosslinked sulfonated polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

IT Fuel cells
(polymer **electrolyte**; crosslinked sulfonated polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

IT Polyimides, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**sulfo**-containing, **aromatic** amine-crosslinked; crosslinked **sulfonated** polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

IT **848469-45-4P 848469-47-6P 848469-48-7P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crosslinked **sulfonated** polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

IT 108-73-6, 1,3,5-Trihydroxybenzene 350-46-9, 4-Fluoronitrobenzene
RL: RCT (Reactant); RACT (Reactant or reagent)
(crosslinker from; crosslinked sulfonated polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

IT 102852-92-6P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(crosslinker; crosslinked sulfonated polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

IT 696614-99-0P, Sodium 3-(3'-nitrophenoxy)propanesulfonate 696615-10-8P 696615-19-7P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer from; crosslinked sulfonated polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

IT 88-75-5, o-Nitrophenol 554-84-7, m-Nitrophenol 55788-44-8, Sodium 3-bromopropanesulfonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(monomer from; crosslinked sulfonated polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

IT 56716-06-4P 532967-92-3P, 2,2'-Bis(3-sulfopropoxy)benzidine

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; crosslinked sulfonated polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

IT **848469-45-4P 848469-47-6P 848469-48-7P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crosslinked **sulfonated** polyimides and their manufacture for polymer **electrolyte** membranes in fuel cells)

RN 848469-45-4 HCAPLUS

CN 1-Propanesulfonic acid, 3,3'-[(4,4'-diamino[1,1'-biphenyl]-2,2'-diyl)bis(oxy)]bis-, polymer with 4,4',4''-[1,3,5-benzenetriyltris(oxy)]tris[benzenamine] and [2]benzopyrano[6,5,4-def][2]benzopyran-1,3,6,8-tetrone, compd. with N,N-diethylethanamine (9CI) (CA INDEX NAME)

CM 1

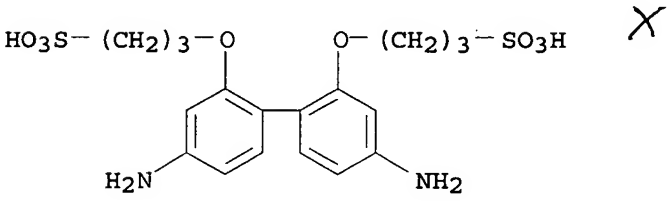
CRN 121-44-8
CMF C6 H15 N

CM 2

CRN 848469-44-3
CMF (C24 H21 N3 O3 . C18 H24 N2 O8 S2 . C14 H4 O6)x
CCI PMS

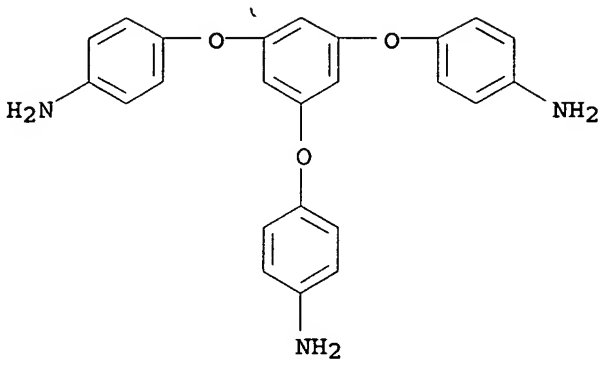
CM 3

CRN 532967-92-3
CMF C18 H24 N2 O8 S2



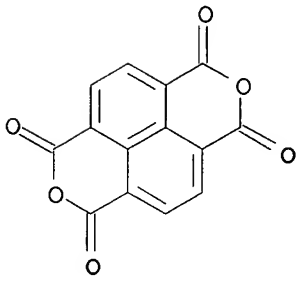
CM 4

CRN 102852-92-6
CMF C24 H21 N3 O3



CM 5

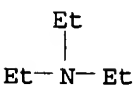
CRN 81-30-1
CMF C14 H4 O6



RN 848469-47-6 HCAPLUS
CN 1-Propanesulfonic acid, 3,3'-[(4,4'-diamino[1,1'-biphenyl]-2,2'-diyl)bis(oxy)]bis-, polymer with 4,4',4''-[1,3,5-benzenetriyltris(oxy)]tris[benzenamine], [2]benzopyrano[6,5,4-def][2]benzopyran-1,3,6,8-tetrone and 4,4'-[[1,1'-biphenyl]-4,4'-diylbis(oxy)]bis[benzenamine], compd. with N,N-diethylethanamine (9CI) (CA INDEX NAME)

CM 1

CRN 121-44-8
CMF C6 H15 N

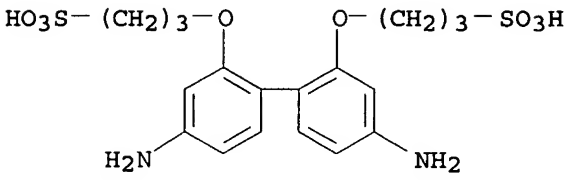


CM 2

CRN 848469-46-5
CMF (C24 H21 N3 O3 . C24 H20 N2 O2 . C18 H24 N2 O8 S2 . C14 H4 O6)x
CCI PMS

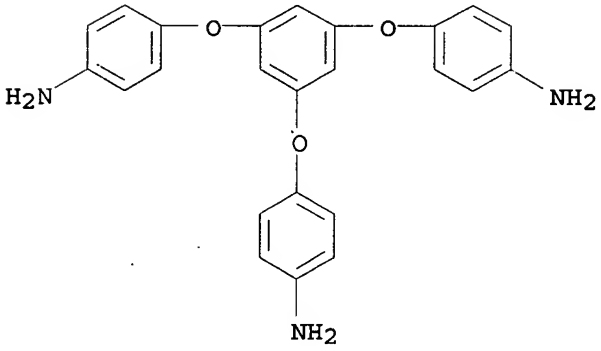
CM 3

CRN 532967-92-3
CMF C18 H24 N2 O8 S2



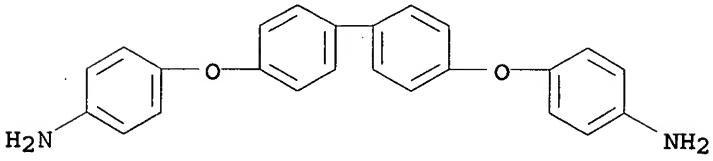
CM 4

CRN 102852-92-6
CMF C24 H21 N3 O3



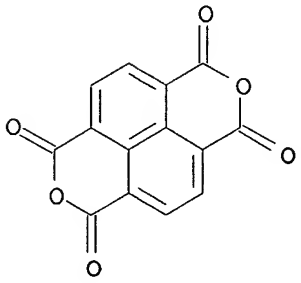
CM 5

CRN 13080-85-8
CMF C24 H20 N2 O2



CM 6

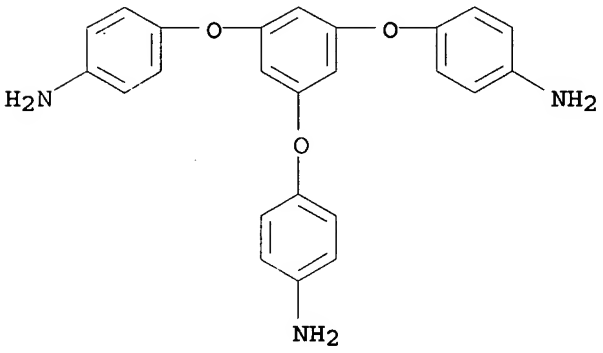
CRN 81-30-1
CMF C14 H4 O6



RN 848469-48-7 HCAPLUS
CN 1-Propanesulfonic acid, 3,3'-[(4,4'-diamino[1,1'-biphenyl]-3,3'-diyl)bis(oxy)]bis-, polymer with 4,4',4''-[1,3,5-benzenetriyltris(oxy)]tris[benzenamine] and [2]benzopyrano[6,5,4-def][2]benzopyran-1,3,6,8-tetrone (9CI) (CA INDEX NAME)

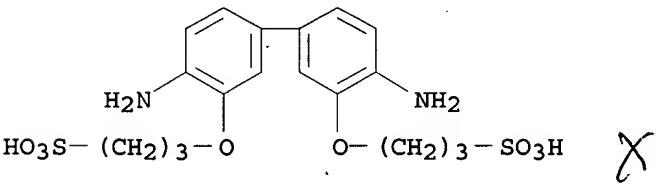
CM 1

CRN 102852-92-6
CMF C24 H21 N3 O3



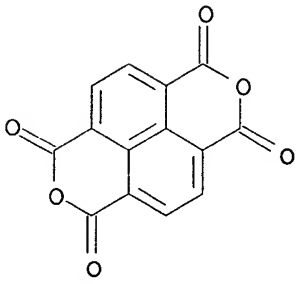
CM 2

CRN 56716-06-4
CMF C18 H24 N2 O8 S2



CM 3

CRN 81-30-1
CMF C14 H4 O6



L34 ANSWER 3 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:54375 HCAPLUS
DN 142:117696
TI Sulfonic acid group-containing polyimide films showing high proton conductivity and polymer electrolyte fuel cells using them
IN Matsuda, Aiko; Mizoguchi, Akira
PA Sumitomo Electric Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 25 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005015541	A2	20050120	JP 2003-179236	20030624
PRAI	JP 2003-179236		20030624		

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The films comprise polyimides including fluorenylene-containing structural repeating units I, and SO3H-containing structural repeating units II and/or III (Ar1, Ar2 = ≥1-SO3H-substituted bivalent organic group; X, Y = CZ2, O, S, NH, NR; R = alkyl; Z = H, halo; m, n ≥0) at I/(II and/or III) molar ratio 5/95-95/5. The films show high mech. strength under dry and wet conditions, and suppress dimensional change in water absorption.
IC ICM C08G073-10
ICS C08J005-22; H01B001-06; H01M008-02; H01M008-10; C08L079-08
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST sulfonic acid polyimide film electrolyte fuel cell; sulfo fluorene polyimide electrolyte fuel cell; proton conductor sulfonic acid polyimide film
IT Fuel cells
(polymer electrolyte; sulfonic acid group-containing polyimide films showing high proton conductivity and mech. strength for polymer electrolyte fuel cells)
IT Ionic conductors
(polymeric; sulfonic acid group-containing polyimide films showing high proton conductivity and mech. strength for polymer electrolyte fuel cells)
IT Polyimides, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM

(Technical or engineered material use); PREP (Preparation); USES (Uses)
(sulfo-containing, ionomers; sulfonic acid group-containing polyimide films showing high proton conductivity and mech. strength for polymer electrolyte fuel cells)

IT Fuel cell electrolytes
Polymer electrolytes
(sulfonic acid group-containing polyimide films showing high proton conductivity
and mech. strength for polymer electrolyte fuel cells)

IT 823177-64-6P **823177-66-8P**
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**sulfonic** acid group-containing polyimide films showing high proton conductivity and mech. strength for polymer **electrolyte** fuel cells)

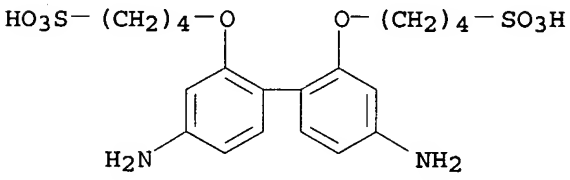
IT **823177-66-8P**
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**sulfonic** acid group-containing polyimide films showing high proton conductivity and mech. strength for polymer **electrolyte** fuel cells)

RN 823177-66-8 HCAPLUS

CN 1-Butanesulfonic acid, 4,4'-[(4,4'-diamino[1,1'-biphenyl]-2,2'-diyl)bis(oxy)]bis-, polymer with [2]benzopyrano[6,5,4-def][2]benzopyran-1,3,6,8-tetrone (9CI) (CA INDEX NAME).

CM 1

CRN 823177-65-7
CMF C20 H28 N2 O8 S2



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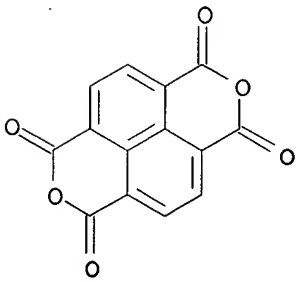
CM 2

CRN 81-30-1
CMF C14 H4 O6



L34 ANSWER 4 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:1058760 HCAPLUS
DN 142:41479
TI Electrolyte membrane filled with polymers and its use in fuel cell
IN Hiraoka, Hideki; Kubota, Kozo; Yamaguchi, Takehisa
PA Toa Gosei Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004349034	A2	20041209	JP 2003-142803	20030521
PRAI	JP 2003-142803		20030521		

AB The membrane has epoxy compound- or oxetanyl compound-containing crosslinked polymers filled in micropores of a porous substrate (e.g., polyolefin), wherein the polymers have ion exchange groups. The membrane has high resistance to MeOH permeation and swelling when used in a direct MeOH-type fuel cell.

IC ICM H01M008-02
ICS C08G059-14; C08G065-321; C08J009-36; H01B001-06; H01M008-10; C08L023-00
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST ion exchange group polymer electrolyte membrane fuel cell; epoxy polymer ion exchange group fuel cell electrolyte; oxetanyl polymer ion exchange group fuel cell electrolyte
IT Fuel cell electrolytes
Polymer electrolytes
(electrolyte membrane filled with ion exchange group-containing epoxy or oxetanyl polymers for fuel cell)
IT Polyolefins
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(porous membrane substrate; electrolyte membrane filled with ion exchange group-containing epoxy or oxetanyl polymers for fuel cell)
IT Epoxy resins, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(sulfonated; electrolyte membrane filled with ion exchange group-containing epoxy or oxetanyl polymers for fuel cell)
IT 9002-88-4, Polyethylene
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(crosslinked, porous membrane substrate; electrolyte membrane filled with ion exchange group-containing epoxy or oxetanyl polymers for fuel cell)
IT 803745-75-7DP, sulfonated
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(electrolyte membrane filled with ion exchange group-containing epoxy or oxetanyl polymers for fuel cell)
IT 146717-34-2DP, sulfonated 803745-76-8DP, sulfonated
804499-68-1DP, sulfonated
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**electrolyte** membrane filled with ion exchange group-containing epoxy or oxetanyl polymers for fuel cell)
IT 106220-70-6, Adeka Optomer SP 150

RL: CAT (Catalyst use); USES (Uses)
(photoacid generator, polymerization with; electrolyte membrane filled with ion exchange group-containing epoxy or oxetanyl polymers for fuel cell)

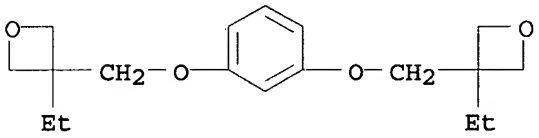
IT 931-36-2, 2-Ethyl-4-methylimidazole
RL: CAT (Catalyst use); USES (Uses)
(polymerization with; electrolyte membrane filled with ion exchange group-containing epoxy or oxetanyl polymers for fuel cell)

IT **804499-68-1DP, sulfonated**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**electrolyte** membrane filled with ion exchange group-containing epoxy or oxetanyl polymers for fuel cell)

RN 804499-68-1 HCAPLUS
CN Oxetane, 3,3'-[1,3-phenylenebis(oxymethylene)]bis[3-ethyl-, polymer with 3-ethyl-3-(phenoxymethyl)oxetane (9CI). (CA INDEX NAME)

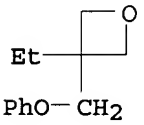
CM 1

CRN 111090-66-5
CMF C18 H26 O4



CM 2

CRN 3897-65-2
CMF C12 H16 O2



L34 ANSWER 5 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:756764 HCAPLUS
DN 141:261463
TI Amine-cured type epoxy resin electrolyte having a sulfonic acid group and -- method for preparation thereof
IN Akiyama, Eiichi; Kawakami, Takashi; Ito, Hitoshi; Yokota, Hiroshi
PA Ebara Corporation, Japan
SO PCT Int. Appl., 62 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004078822	A1	20040916	WO 2004-JP2571	20040302

W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG,

BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR,
CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES,
ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN,
IS, KE, KE, KG, KG, KP, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR,
LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ,
NA, NI, NI, NO
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG

JP 2004263153 A2 20040924 JP 2003-57730 20030304
PRAI JP 2003-57730 A 20030304

AB Provided are a sulfonic-acid-containing amine-cured type epoxy resins; electrolyte or electrolyte membrane containing the resin; method for preparation thereof; electrochem. device using the membrane. The electrolyte and electrolyte membrane according to the present invention have electrolyte properties such as ion conductivity enough for use in electrochem. devices, have heat resistance and mech. strength, and can be prepared at a low cost. In addition, bonding or adhesion to electrodes is excellent owing to suppressed swelling of the membrane when impregnated with a solvent. An electrolyte was prepared from 2,2-bis(4-glycidyloxyphenyl)propane, triethylenetetramine, and 1,3-propanesultone.

IC ICM C08G059-50
ICS C08G059-14; C08J005-22; H01M006-18; H01M008-10
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 76
ST amine cured sulfonate contg epoxy resin electrolyte
IT Conducting polymers
Electrolytes
(amine-cured type epoxy resin electrolyte having a sulfonic acid group and method for preparation thereof)
IT Electric apparatus
(electrochem.; amine-cured type epoxy resin electrolyte having a sulfonic acid group and method for preparation thereof)
IT Membranes, nonbiological
(electrolyte; amine-cured type epoxy resin electrolyte having a sulfonic acid group and method for preparation thereof)
IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sulfonic-acid-containing, amine-cured; amine-cured type epoxy resin electrolyte having a sulfonic acid group and method for preparation thereof)
IT 756901-59-4P
RL: IMF (Industrial manufacture); PREP (Preparation)
(amine-cured type epoxy resin electrolyte having a sulfonic acid group and method for preparation thereof)
IT 16146-59-1P, 1,5-Bis(4-hydroxyphenoxy)pentane 27184-40-3P 29239-84-7P 41481-62-3P 73310-55-1P 105359-67-9P 105646-18-2P 756901-60-7P 756901-61-8P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(amine-cured type epoxy resin electrolyte having a sulfonic acid group and method for preparation thereof)
IT 1120-71-4DP, 1,3-Propanesultone, reaction products with 2,2-bis(4-glycidyloxyphenyl)propane-triethylenetetramine copolymer 1633-83-6DP, reaction products with 2,2-bis(4-glycidyloxyphenyl)propane-triethylenetetramine copolymer 27615-34-5DP, reaction products with 1,3-propanesultone 33659-99-3DP, reaction products with

1,3-propanesultone 73310-55-1DP, reaction products with
1,3-propanesultone 110302-44-8DP, reaction products with
1,3-propanesultone 114556-66-0DP, reaction products with
1,3-propanesultone 129388-49-4DP, reaction products with
1,3-propanesultone 192199-60-3DP, reaction products with
1,3-propanesultone 194224-76-5DP, reaction products with
1,3-propanesultone 401594-86-3DP, reaction products with
1,3-propanesultone 640732-03-2DP, reaction products with
1,3-propanesultone 756901-62-9DP, reaction products with
1,3-propanesultone 756901-65-2DP, reaction products with
1,3-propanesultone 756901-66-3DP, reaction products with
1,3-propanesultone **756901-67-4DP**, reaction products with
1,3-propanesultone **756901-68-5DP**, reaction products with
1,3-propanesultone 756901-69-6DP, reaction products with
1,3-propanesultone 756901-70-9DP, reaction products with
1,3-propanesultone 756901-71-0DP, reaction products with
1,3-propanesultone 756901-72-1DP, reaction products with
1,3-propanesultone 756901-73-2DP, reaction products with
1,3-propanesultone **756901-74-3DP**, reaction products with
1,3-propanesultone 756901-75-4DP, reaction products with
1,3-propanesultone 756901-76-5DP, reaction products with
1,3-propanesultone 756901-78-7DP, reaction products with
1,3-propanesultone 756901-79-8DP, reaction products with
1,3-propanesultone 756901-80-1DP, reaction products with
1,3-propanesultone 756901-81-2DP, reaction products with
1,3-propanesultone 756901-82-3DP, reaction products with
1,3-propanesultone
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(amine-cured type epoxy resin **electrolyte** having a **sulfonic** acid group and method for preparation thereof)

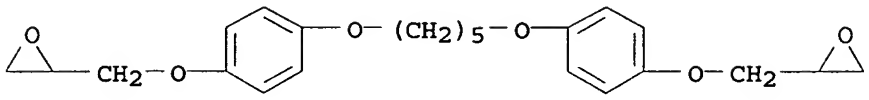
IT 92-88-6, 4,4'-Diphenol 101-80-4, 4,4'-Diaminodiphenyl ether 103-16-2, 4-(Benzyloxy)phenol 106-89-8, Epichlorohydrin, reactions 111-24-0, 1,5-Dibromopentane 13080-85-8, 4,4'-Bis(4-aminophenoxy)-biphenyl 19249-03-7, Triethylene glycol di-p-tosylate
RL: RCT (Reactant); RACT (Reactant or reagent)
(amine-cured type epoxy resin electrolyte having a sulfonic acid group and method for preparation thereof)

IT **756901-67-4DP**, reaction products with 1,3-propanesultone
756901-68-5DP, reaction products with 1,3-propanesultone
756901-74-3DP, reaction products with 1,3-propanesultone
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(amine-cured type epoxy resin **electrolyte** having a **sulfonic** acid group and method for preparation thereof)

RN 756901-67-4 HCAPLUS
CN 1,2-Ethanediamine, N,N'-bis(2-aminoethyl)-, polymer with 2,2'-[1,5-pentanediylbis(oxy-4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

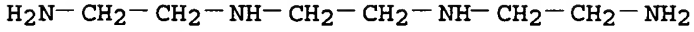
CM 1

CRN 756901-59-4
CMF C23 H28 O6



CM 2

CRN 112-24-3
CMF C6 H18 N4

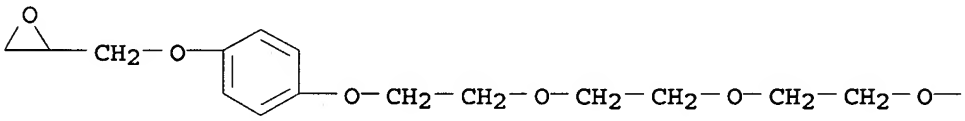


RN 756901-68-5 HCAPLUS
CN 1,2-Ethanediamine, N,N'-bis(2-aminoethyl)-, polymer with 2,2'-[1,2-ethanediylbis(oxy-2,1-ethanediyloxy-4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

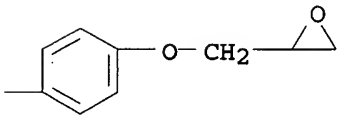
CM 1

CRN 27184-40-3
CMF C24 H30 O8

PAGE 1-A

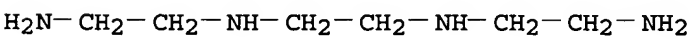


PAGE 1-B



CM 2

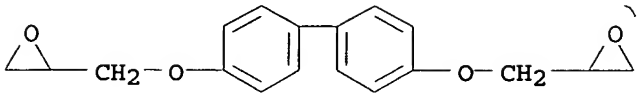
CRN 112-24-3
CMF C6 H18 N4



RN 756901-74-3 HCAPLUS
CN 1,2-Ethanediamine, N,N'-bis(2-aminoethyl)-, polymer with 2,2'-[[1,1'-biphenyl]-4,4'-diylbis(oxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 2461-46-3
CMF C18 H18 O4



CM 2

CRN 112-24-3
CMF C6 H18 N4

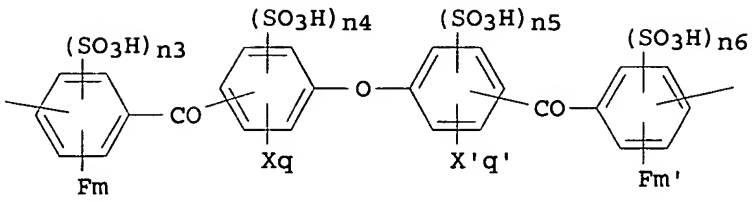
$H_2N-CH_2-CH_2-NH-CH_2-CH_2-NH-CH_2-CH_2-NH_2$

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

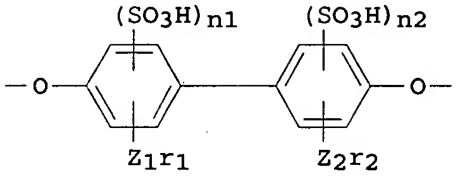
L34 ANSWER 6 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:700578 HCAPLUS
DN 141:210090
TI **Sulfonated** fluorine-containing **polyaryl** ethers, their compositions, moldings, and polymer **electrolyte** membranes
IN Sakaguchi, Yoshimitsu; Kitamura, Kota; Nagahara, Shigenori; Omote, Kazushi; Nishichi, Ai; Asako, Yoshinobu
PA Toyobo Co., Ltd., Japan; Nippon Shokubai Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 35 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004238424	A2	20040826	JP 2003-26294	20030203
PRAI	JP 2003-26294		20030203		

GI



I



II

AB The polyaryl ethers have repeating units of I [m, m' = 0-4, (m + m') = 1-8; X, X' = halo, C1-6 lower alk(ox)yl; q, q' = 0-4; n1-n6 = 0-2, (n1 + n2 + n3 + n4 + n5 + n6) = 1-12; (n3 + m) ≤4, (n4 + q) ≤4, (n5 + q') ≤4, (n6 + m') ≤4] and II [Z1, Z2 = C1-6 lower alkyl, alkoxyl, carboxyl, carbonyl, nitro, amino, OH, halo; r1, r2 = 0-4; (n1 + r1) ≤4, (n2 + r2) ≤4], and/or repeating units of III and IV [s = 1, 2; n7, n8, n9 = 0-2, (n7 + n8 + n9) = 1-6; Z3, Z4 = C1-6 lower alkyl, alkoxyl, carboxyl, carbonyl, nitro, amino, OH, halo; r3, r4 = 0-4; (n7 + r3) ≤4, (n8 + r4) ≤4]. The membranes, useful for fuel cell **electrolytes**, have desirable amts. of sulfonic acid groups, and show improved ionic conductivity and heat resistance.

IC ICM C08G065-48
ICS H01B001-06; H01M008-02; H01M008-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST **sulfonated** fluoropolymer **polyaryl** ether molding **electrolyte** membrane; fuel cell **electrolyte** polyether polyketone fluoropolymer sulfonated; hydroxyphenyl hexafluoropropane pentafluorobenzoyl diphenyl biphenol polymer sulfonated

IT Heat-resistant materials
(films; **sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT Polyethers, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(fluorine-containing, **sulfonated**; **sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT Films
(heat-resistant; **sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT Polyketones
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, fluorine-containing, **sulfonated**; **sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT Fluoropolymers, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-, **sulfonated**; **sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT Fluoropolymers, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polyketone-, **sulfonated**; **sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT Polyethers, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-, fluorine-containing, **sulfonated**; **sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT Ionic conductors
(polymeric; **sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT Fuel cell **electrolytes**
Membranes, nonbiological
Polymer **electrolytes**
(**sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

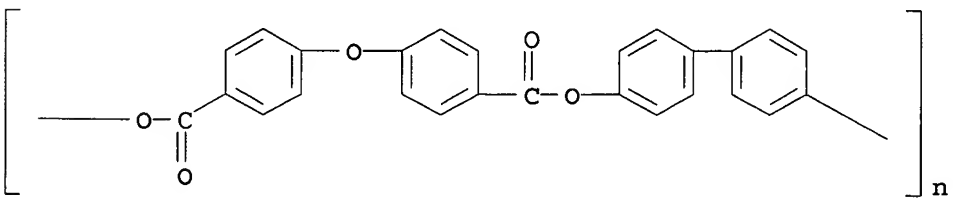
IT Molded plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT **115967-58-3DP**, **sulfonated** 744229-28-5DP, **sulfonated** 744229-29-6DP, **sulfonated** 744229-30-9DP, **sulfonated**
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT 744229-28-5P 744229-29-6P 744229-30-9P 745793-70-8P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(**sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

IT **115967-58-3DP**, **sulfonated**
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**sulfonated** F-containing **polyaryl** ethers for polymer **electrolyte** membranes with good durability)

RN 115967-58-3 HCAPLUS
CN Poly(oxycarbonyl-1,4-phenyleneoxy-1,4-phenylenecarbonyloxy[1,1'-biphenyl]-4,4'-diyl) (9CI) (CA INDEX NAME)

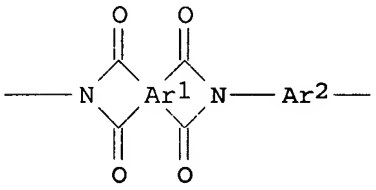


L34 ANSWER 7 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:450890 HCAPLUS
DN 141:8327
TI **Sulfoalkoxylated aromatic** polyimides for **electrolyte** membranes
IN Okamoto, Kenichi; Kita, Hidetoshi; Feng, Chien-Hua; Hirano, Tetsuji; Kiuchi, Masayuki; Ueda, Masahiro; Nakamura, Kazumasa
PA Yamaguchi T.L.O. Y. K., Japan; Ube Industries, Ltd.; Shinyei Kaisha
SO Jpn. Kokai Tokkyo Koho, 23 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004155998	A2	20040603	JP 2002-325440	20021108
PRAI JP 2002-325440		20021108		

GI



I

AB The **sulfoalkoxylated aromatic** polyimides, useful for fuel cell **electrolytes**, ion-exchange membranes, gas sensors, etc., have repeating units represented by I [Ar1 = aromatic ring-containing tetravalent group; Ar2 = [C6R4-k[O(CH2)nSO3X]k]m; R = H, C1-2 alkyl; m = 1-2; n = 1-6; k = 1-2; X = H, alkali metal, ammonium, quaternary amine]. Thus, 3-(2',4'-diaminophenoxy)propane sulfonic acid monohydrochloride-1,4,5,8-naphthalenetetracarboxylic dianhydride copolymer polyimide film showed good water resistance, high proton conductivity, and low methanol permeability.
IC ICM C08G073-10
ICS C08J005-22; H01B001-06; H01M008-02; H01M008-10; C08L079-08
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 25, 52, 76
ST **sulfoalkoxylated arom** polyimide **electrolyte** proton conductor; fuel cell **electrolyte** gas sensor polyimide membrane; ion exchange membrane sulfoalkoxylated polyimide **electrolyte**; aminophenoxypropane **sulfonic naphthalenetetracarboxylate** polyimide film water resistance
IT Water-resistant materials
(films, **electrolyte** membranes; **sulfoalkoxylated aromatic** polyimides for water-resistant **electrolyte** membranes)
IT Ionic conductors
(polymeric; **sulfoalkoxylated aromatic** polyimides for water-resistant **electrolyte** membranes)
IT Fuel cell **electrolytes**
Gas sensors
Ion exchange membranes
Polymer **electrolytes**
(**sulfoalkoxylated aromatic** polyimides for water-resistant **electrolyte** membranes)

IT Polyimides, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**sulfoalkoxylated aromatic** polyimides for water-resistant **electrolyte** membranes)

IT Films
(water-resistant, **electrolyte** membranes; **sulfoalkoxylated aromatic** polyimides for water-resistant **electrolyte** membranes)

IT 56716-06-4P 405066-50-4P 532967-92-3P 597544-23-5P 696614-99-0P 696615-10-8P 696615-19-7P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(**sulfoalkoxylated aromatic** polyimides for water-resistant **electrolyte** membranes)

IT 597544-25-7P 599179-63-2P **648900-41-8P 648900-42-9P 696615-46-0P 696615-57-3P 696615-88-0P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**sulfoalkoxylated aromatic** polyimides for water-resistant **electrolyte** membranes)

IT 51-28-5, 2,4-Dinitrophenol, reactions 88-75-5, o-Nitrophenol 554-84-7, m-Nitrophenol 55788-44-8, Sodium 3-**bromopropanesulfonate**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**sulfoalkoxylated aromatic** polyimides for water-resistant **electrolyte** membranes)

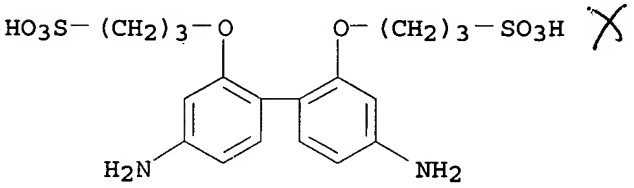
IT **648900-41-8P 648900-42-9P 696615-46-0P 696615-57-3P 696615-88-0P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**sulfoalkoxylated aromatic** polyimides for water-resistant **electrolyte** membranes)

RN 648900-41-8 HCAPLUS

CN 1-Propanesulfonic acid, 3,3'-[(4,4'-diamino[1,1'-biphenyl]-2,2'-diyl)bis(oxy)]bis-, polymer with [2]benzopyrano[6,5,4-def][2]benzopyran-1,3,6,8-tetrone (9CI) (CA INDEX NAME)

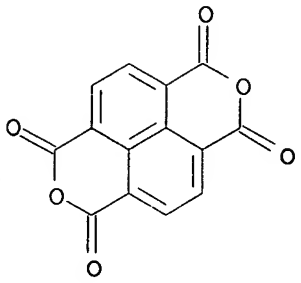
CM 1

CRN 532967-92-3
CMF C18 H24 N2 O8 S2



CM 2

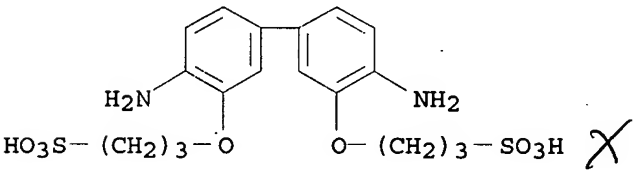
CRN 81-30-1
CMF C14 H4 O6



RN 648900-42-9 HCAPLUS
CN 1-Propanesulfonic acid, 3,3'-[(4,4'-diamino[1,1'-biphenyl]-3,3'-diyl)bis(oxy)]bis-, polymer with [2]benzopyrano[6,5,4-def][2]benzopyran-1,3,6,8-tetrone (9CI) (CA INDEX NAME)

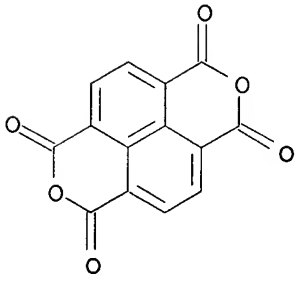
CM 1

CRN 56716-06-4
CMF C18 H24 N2 O8 S2

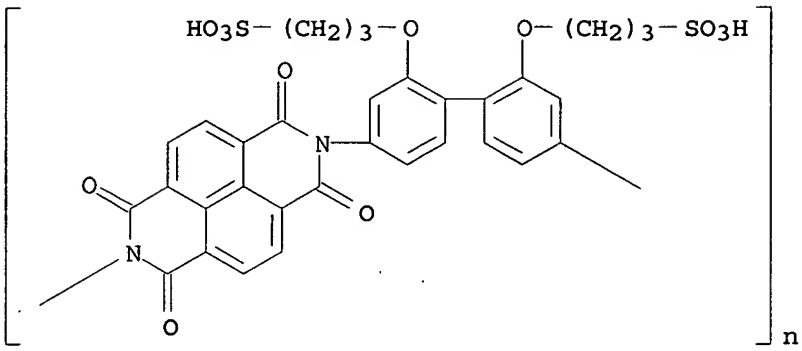


CM 2

CRN 81-30-1
CMF C14 H4 O6



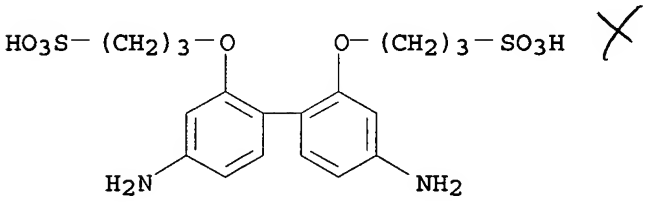
RN 696615-46-0 HCAPLUS
CN Poly[(1,3,6,8-tetrahydro-1,3,6,8-tetraoxobenzo[lmn][3,8]phenanthroline-2,7-diyl)[2,2'-bis(3-sulfopropoxy)[1,1'-biphenyl]-4,4'-diyl]] (9CI) (CA INDEX NAME)



RN 696615-57-3 HCAPLUS
CN 1-Propanesulfonic acid, 3,3'-[(4,4'-diamino[1,1'-biphenyl]-2,2'-diyl)bis(oxy)]bis-, polymer with 1,3-benzenediamine and [2]benzopyrano[6,5,4-def][2]benzopyran-1,3,6,8-tetrone (9CI) (CA INDEX NAME)

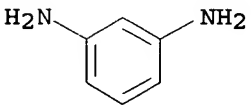
CM 1

CRN 532967-92-3
CMF C18 H24 N2 O8 S2



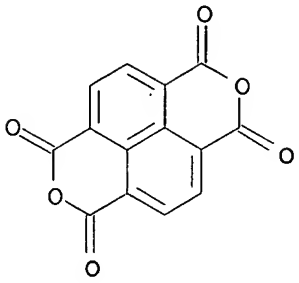
CM 2

CRN 108-45-2
CMF C6 H8 N2

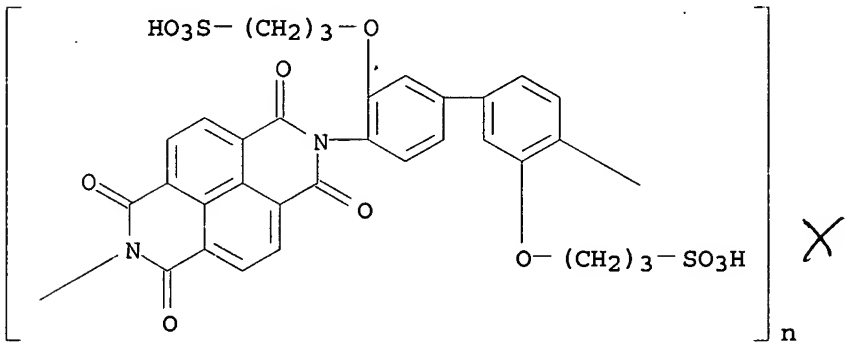


CM 3

CRN 81-30-1
CMF C14 H4 O6



RN 696615-88-0 HCAPLUS
CN Poly[(1,3,6,8-tetrahydro-1,3,6,8-tetraoxobenzo[lmn][3,8]phenanthroline-2,7-diyl)[3,3'-bis(3-sulfopropoxy)[1,1'-biphenyl]-4,4'-diyl]] (9CI) (CA INDEX NAME)

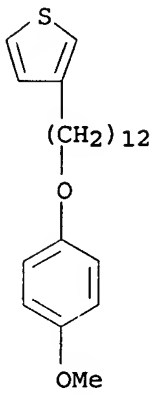


L34 ANSWER 8 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:397559 HCAPLUS
DN 141:113977
TI Solid-state electrochromic device based on two poly(thiophene) derivatives
AU Ribeiro, A. S.; Machado, D. A.; Faria dos Santos Filho, P.; De Paoli, M.-A.
CS Laboratorio de Polimeros Condutores e Reciclagem, Instituto de Quimica, Sao Paulo, 13084-971, Brazil
SO Journal of Electroanalytical Chemistry (2004), 567(2), 243-248
CODEN: JECHES
PB Elsevier
DT Journal
LA English
AB A solid-state electrochromic device was assembled using a polymer electrolyte and optically transparent electrodes modified with thin films of poly{3-[12-(p-methoxyphenoxy)dodecyl]thiophene} and poly(3,4-ethylenedioxythiophene) doped with poly(styrenesulfonate). Poly(epichlorohydrin-co-ethylene oxide) containing LiClO4 was used as the polymer electrolyte. After assembling, the device was studied by spectroelectrochem. techniques. The best performance of this device could be obtained by adjusting the relative thickness of the active polymer films and the potential range of operation of the device. The device shows color variation during ca. 500 charge/discharge cycles and can be constructed under atmospheric conditions. The results obtained suggest a multitude of perspectives in applications in electrochromic displays.
CC 74-9 (Radiation Chemistry, Photochemistry, and Photographic and Other

Reprographic Processes)
Section cross-reference(s): 73
ST electrochromic device polythiophene deriv
IT Epichlorohydrin rubber
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(epichlorohydrin-ethylene oxide, electrolyte; solid-state electrochromic device using polymer electrolyte and transparent electrodes modified with poly(thiophene) derivs.)
IT Electrochromic imaging devices
Polymer electrolytes
Thickness
(solid-state electrochromic device using polymer electrolyte and transparent electrodes modified with poly(thiophene) derivs.)
IT Electrochemistry
(spectroelectrochem.; solid-state electrochromic device using polymer electrolyte and transparent electrodes modified with poly(thiophene) derivs.)
IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(doped with poly(styrenesulfonate), electrode; solid-state electrochromic device using polymer electrolyte and transparent electrodes modified with poly(thiophene) derivs.)
IT 24969-10-6, Ethylene oxide-epichlorohydrin copolymer
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(elastomeric, electrolyte; solid-state electrochromic device using polymer electrolyte and transparent electrodes modified with poly(thiophene) derivs.)
IT **693775-72-3**
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(electrode; solid-state electrochromic device using polymer **electrolyte** and transparent electrodes modified with poly(thiophene) derivs.)
IT 7791-03-9, Lithium perchlorate
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(electrolyte; solid-state electrochromic device using polymer electrolyte and transparent electrodes modified with poly(thiophene) derivs.)
IT 721435-18-3
RL: MOA (Modifier or additive use); USES (Uses)
(poly(ethylenedioxythiophene) doped with; solid-state electrochromic device using polymer electrolyte and transparent electrodes modified with poly(thiophene) derivs.)
IT **693775-72-3**
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(electrode; solid-state electrochromic device using polymer **electrolyte** and transparent electrodes modified with poly(thiophene) derivs.)
RN 693775-72-3 HCAPLUS
CN Thiophene, 3-[12-(4-methoxyphenoxy)dodecyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693775-71-2
CMF C23 H34 O2 S



RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 9 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:20161 HCAPLUS
DN 140:79789
TI Polymer electrolytes showing high ion conductivity at low temperature and secondary lithium batteries
IN Ito, Takahito; Yamamoto, Osamu; Fujinami, Tatsuo
PA Toyota Motor Corp., Japan; Genesis Research Institute Inc.
SO Jpn. Kokai Tokkyo Koho, 27 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004006237	A2	20040108	JP 2003-2423	20030108
PRAI	JP 2002-107035	A	20020409		

AB The electrolytes contain base polymers, highly-branched oligoethylene oxide polymers, mixed oxides, and Li salts. The batteries having electrolyte containing the base polymers, the oligoethylene oxide polymers, mixed oxides, and composite Li salts suppress reaction of the electrolytes with current collectors, e.g., Al, achieving good performance at low and high temps.
IC ICM H01M010-40
ICS H01B001-06; H01B001-12; H01M004-02; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST polyoxyethylene lithium complex battery electrolyte; polybistriethylene glycol benzoate electrolyte lithium battery; polyether polyester dendrimer electrolyte lithium battery; barium titanium oxide lithium battery polymer electrolyte; lithium fluorosulonylimide polyoxyethylene electrolyte battery; ionic conductor highly branched polymer electrolyte
IT Battery cathodes
(containing boroxins in polymer electrolyte binders; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(lithium complex, trifluoromethanesulfonylimide-containing; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(lithium complexes; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT Secondary batteries
(lithium; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(polyester-, dendrimers, lithium complexes, trifluoromethanesulfonylimide-containing; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT Dendritic polymers
RL: DEV (Device component use); USES (Uses)
(polyester-polyoxyalkylene-, lithium complexes, trifluoromethanesulfonylimide-containing; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT Battery electrolytes
Ionic conductors
Polymer electrolytes
(polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylene-, dendrimers, lithium complexes, trifluoromethanesulfonylimide-containing; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT 289-56-5D, Boroxin, trialkyl derivative
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(additives for polymer electrolyte binders in cathodes; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT 21324-40-3, Lithium hexafluorophosphate 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide 132843-44-8, Lithium bis(pentafluoroethylsulfonyl)imide
RL: RCT (Reactant); RACT (Reactant or reagent)
(complex with polyethylene glycol and highly-branched poly[bis(triethylene glycol) benzoate] acetate; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT 7439-93-2D, Lithium, trifluoromethanesulfonate-containing, complex with polyethylene glycol and highly-branched poly[bis(triethylene glycol) benzoate] acetate 9003-11-6D, Ethylene oxide-propylene oxide copolymer, lithium complexes 25322-68-3D, Polyethylene glycol, lithium complex, trifluoromethanesulfonylimide-containing 25322-69-4D, Polypropylene glycol, lithium complexes **239798-54-0D**, lithium complex, **trifluoromethanesulfonylimide**-containing
RL: DEV (Device component use); USES (Uses)
(polymer **electrolytes** containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT 12047-27-7, Barium titanium oxide (BaTiO3), uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES

(Uses)
(polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

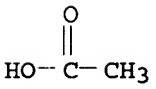
IT 12003-67-7, Aluminum lithium oxide (AlLiO2)
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(α- or γ-; polymer electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

IT **239798-54-0D**, lithium complex, **trifluoromethanesulfonylimide*** ** -containing**
RL: DEV (Device component use); USES (Uses)
(polymer ***electrolytes containing highly-branched oligoethylene oxide polymers, mixed mixed oxides, and Li salts for secondary lithium batteries)

RN 239798-54-0 HCAPLUS
CN Benzoic acid, 3,5-bis[2-[2-(2-hydroxyethoxy)ethoxy]ethoxy]-, homopolymer, acetate (9CI) (CA INDEX NAME)

CM 1

CRN 64-19-7
CMF C2 H4 O2

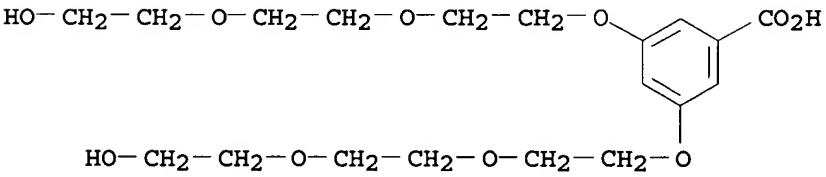


CM 2

CRN 239798-53-9
CMF (C19 H30 O10)x
CCI PMS

CM 3

CRN 239798-52-8
CMF C19 H30 O10



L34 ANSWER 10 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:658701 HCAPLUS
DN 140:130980
TI Sulfonated polyimides for polymer electrolyte membrane fuel cell
AU Okamoto, Ken-ichi
CS Department of Advanced Materials Science and Engineering, Faculty of Engineering, Yamaguchi University, Yamaguchi, 755-8611, Japan

SO Journal of Photopolymer Science and Technology (2003), 16(2), 247-254
CODEN: JSTEEW; ISSN: 0914-9244
PB Technical Association of Photopolymers, Japan
DT Journal
LA English
AB Two types of novel sulfonated diamines bearing sulfonic acid groups directly bonded to polyimide main chains (main-chain type) or in the side alkoxy chains (side-chain type), and the corresponding sulfonated polyimides were successfully synthesized. Water vapor sorption, proton conductivity σ, methanol permeability PM, membrane stability toward hot water, and size change with water uptake of the sulfonated polyimide membranes were studied. The membranes of sulfonated polyimides prepared from the proper mol. design showed much better water stability and higher proton conductivity compared with the conventional polyimides based on 2,2'-benzidinedisulfonic acid. They also displayed the higher ratio of σ over PM than Nafion 117 membrane. They might have potential for polymer electrolyte fuel cell and methanol direct fuel cell applications.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST sulfonated polyimide polymer electrolyte membrane fuel cell proton cond; water swelling absorption polyimide polymer ion exchange capacity membrane
IT Electric current-potential relationship
(of cells with these membranes; sulfonated polyimides for polymer electrolyte membrane fuel cell)
IT Polyimides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyether-, sulfonated; sulfonated polyimides for polymer electrolyte membrane fuel cell)
IT Polyimides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyether-; sulfonated polyimides for polymer electrolyte membrane fuel cell)
IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimide-, sulfonated; sulfonated polyimides for polymer electrolyte membrane fuel cell)
IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimide-; sulfonated polyimides for polymer electrolyte membrane fuel cell)
IT Ionic conductivity
(proton; sulfonated polyimides for polymer electrolyte membrane fuel cell)
IT Permeability
(selective; sulfonated polyimides for polymer electrolyte membrane fuel cell)
IT Fuel cell separators
Ion exchange
Ion exchange membranes
Polyelectrolytes
(sulfonated polyimides for polymer electrolyte membrane fuel cell)
IT Swelling, physical
(with water; sulfonated polyimides for polymer electrolyte membrane fuel cell)
IT 302924-87-4P **648900-41-8P 648900-42-9P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(**sulfonated** polyimides for polymer **electrolyte** membrane fuel cell)

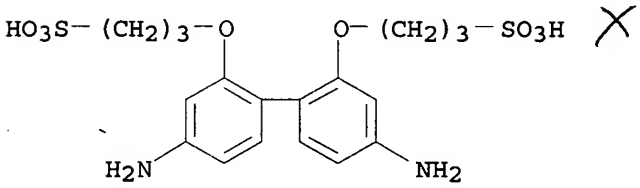
IT 196309-83-8P 455944-29-3P 455944-36-2P 500295-68-1P 500295-69-2P
545389-73-9P 648900-38-3P 648900-40-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(sulfonated polyimides for polymer electrolyte membrane fuel cell)

IT **648900-41-8P 648900-42-9P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(**sulfonated** polyimides for polymer **electrolyte** membrane fuel cell)

RN 648900-41-8 HCAPLUS
CN 1-Propanesulfonic acid, 3,3'-[(4,4'-diamino[1,1'-biphenyl]-2,2'-diyl)bis(oxy)]bis-, polymer with [2]benzopyrano[6,5,4-def][2]benzopyran-1,3,6,8-tetrone (9CI) (CA INDEX NAME)

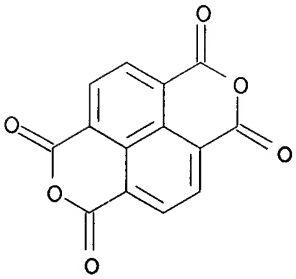
CM 1

CRN 532967-92-3
CMF C18 H24 N2 O8 S2



CM 2

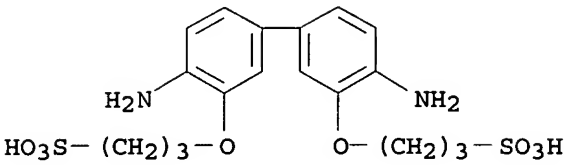
CRN 81-30-1
CMF C14 H4 O6



RN 648900-42-9 HCAPLUS
CN 1-Propanesulfonic acid, 3,3'-[(4,4'-diamino[1,1'-biphenyl]-3,3'-diyl)bis(oxy)]bis-, polymer with [2]benzopyrano[6,5,4-def][2]benzopyran-1,3,6,8-tetrone (9CI) (CA INDEX NAME)

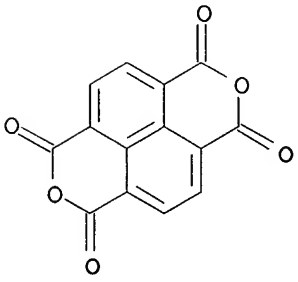
CM 1

CRN 56716-06-4
CMF C18 H24 N2 O8 S2



CM 2

CRN 81-30-1
CMF C14 H4 O6



RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 11 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:492509 HCAPLUS
DN 139:55473
TI Solid polymer **electrolyte** and ion-exchange resin for electrochemical devices
IN Morishima, Makoto; Kamo, Tomoichi; Kobayashi, Toshiyuki; Yamaga, Kenji; Koyama, Tohru
PA Japan
SO U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DT Patent
LA English

applicant

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003118886	A1	20030626	US 2002-81148	20020225
	JP 2003187826	A2	20030704	JP 2001-388200	20011220
	CA 2373212	AA	20030620	CA 2002-2373212	20020225
	US 2003129467	A1	20030710	US 2002-176606	20020624
PRAI	JP 2001-388200	A	20011220		
	US 2002-81148	A1	20020225		

AB The object of this invention is to provide a solid polymer **electrolyte** which is excellent in durability and of low cost, and membranes, solns. for electrode catalyst coating, membrane/electrode assemblies and fuel cells which use the **electrolyte.** Gas supply passages to the anode and to the cathode are provided according to this invention, there can be provided a fuel cell which comprises an electrode assembly having an electrode catalyst membrane formed therein, the catalyst membrane comprising a polymer **electrolyte** membrane held

between an anode on one side of the principal plane of the **electrolyte** membrane and a cathode on the other side of the principal lane thereof, current collecting plates provided each independently in close contact, to the anode side and the cathode side of the electrode assembly, and electroconductive separators having gas supply passages to the anode and to the cathode provided on the outside surfaces of the current collecting plates.

IC ICM H01M008-10
ICS H01M004-86

INCL 429033000; 521025000; 429042000; 429044000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72, 76

ST polymer **electrolyte** ion exchange resin electrochem device; fuel cell polymer **electrolyte** ion exchange resin; electrolyzer polymer **electrolyte** ion exchange resin; sensor polymer **electrolyte** ion exchange resin

IT Polyphenyls
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(copolymers; solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT Catalysts
(electrocatalysts; solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT Polymerization
(oxidative coupling; solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT Fuel gas manufacturing
(reforming; solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT Fuel cells
(solid **electrolyte**; solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT **Electrolytic** cells
Fuel cell **electrolytes**
Gas sensors
Hygrometers
Ion exchangers
Polymer **electrolytes**
(solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT Platinum alloy, base
RL: DEV (Device component use); USES (Uses)
(solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT 7440-06-4, Platinum, uses
RL: DEV (Device component use); USES (Uses)
(solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT 121136-23-0DP, sulfobutoxylated 421549-88-4DP, Poly(2,6-dihydroxy-1,5-**naphthalenediyl), sulfobutoxylated 544673-34-9P 544673-36-1P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT 104-36-9P, 1,4-Di(butoxy)benzene 39800-63-0P, 4,4'-Dibutoxybiphenyl 121136-23-0P 421549-88-4P, Poly(2,6-dihydroxy-1,5-naphthalenediyl) 544673-32-7P 544673-33-8P 544673-35-0P
RL: SPN (Synthetic preparation); PREP (Preparation)

(solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

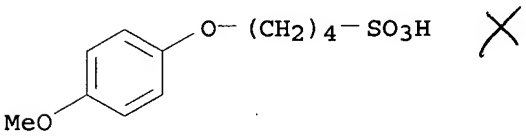
IT 1333-74-0P, Hydrogen, uses
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

IT **544673-34-9P 544673-36-1P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(solid polymer **electrolyte** and ion-exchange resin for electrochem. devices)

RN 544673-34-9 HCAPLUS
CN 1-Butanesulfonic acid, 4,4'-[1,4-phenylenebis(oxy)]bis-, sodium salt, polymer with 1,4-dibutoxybenzene and sodium 4-(4-methoxyphenoxy)-1-butanesulfonate (9CI) (CA INDEX NAME)

CM 1

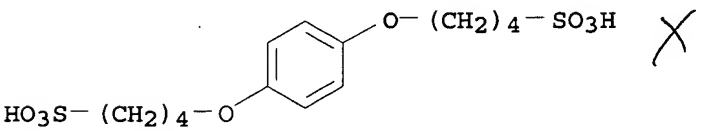
CRN 544673-33-8
CMF C11 H16 O5 S . Na



● Na

CM 2

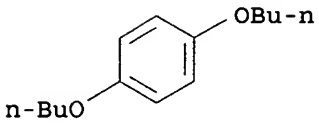
CRN 544673-32-7
CMF C14 H22 O8 S2 . x Na



● x Na

CM 3

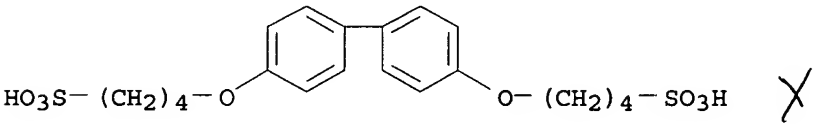
CRN 104-36-9
CMF C14 H22 O2



RN 544673-36-1 HCAPLUS
CN 1-Butanesulfonic acid, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis(oxy)]bis-, sodium salt, polymer with 4,4'-dibutoxy-1,1'-biphenyl (9CI) (CA INDEX NAME)

CM 1

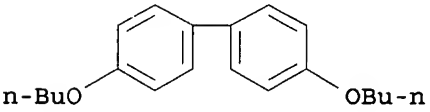
CRN 544673-35-0
CMF C20 H26 O8 S2 . x Na



●x Na

CM 2

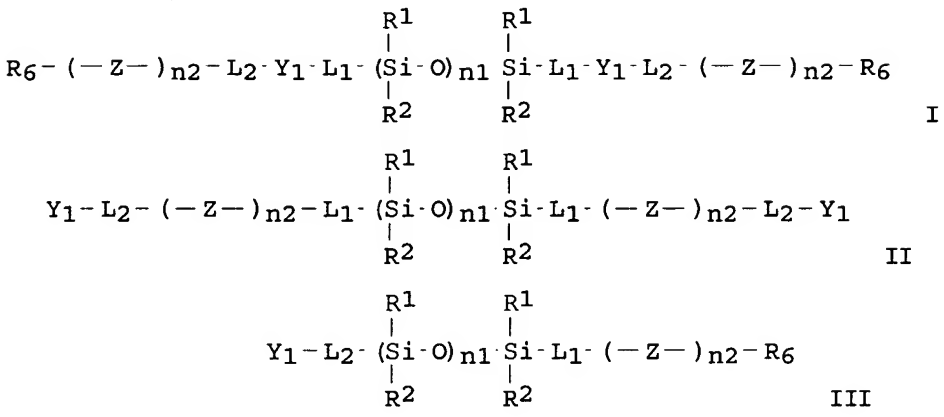
CRN 39800-63-0
CMF C20 H26 O2



L34 ANSWER 12 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:673113 HCAPLUS
DN 137:219505
TI Electrolyte composition, battery, photoelectrochemical cell, secondary nonaqueous electrolyte battery, and liquid crystal compounds
IN Ono, Michio; Yasuda, Takayasu; Wariishi, Koji
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 32 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002251916	A2	20020906	JP 2001-47041	20010222
PRAI	JP 2001-47041		20010222		

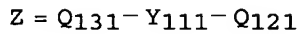
OS MARPAT 137:219505
GI



I

II

III



AB The electrolyte contains a liquid crystal compound having cation and/or anion containing repeating units -(SiR1R2-O-)n1, where R1 and R2 = (substituted) alkyl groups, n1 ≥3. The liquid crystal compound is I, II, or III, where the R6 = H or a substituent group, Y111= bivalent (4-7)- membered ring, Q121 and Q131 = bivalent junction group or single bond, n2 = 1, 2, or 3, (n = 2 or 3 the ≥1 of Y111, Q121, or Q131 in the compound can be different from each other), and X1 is the counter ion for Y1. Batteries, secondary nonaq. batteries, and photoelectrochem. cells use the electrolyte.

IC ICM H01B001-06
ICS C08L083-04; H01M010-40; H01M014-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery electrolyte liq crystal compd; photoelectrochem cell electrolyte liq crystal compd

IT Battery electrolytes
Liquid crystals
Photoelectrochemical cells
(compns. of electrolytes containing liquid crystal compds. for secondary lithium batteries and photoelectrochem. cells)

IT 311-28-4, Tetrabutylammonium iodide 14283-07-9, Lithium fluoroborate 65039-05-6 90076-65-6 455934-78-8 455934-80-2 455934-81-3 455934-83-5 455934-84-6 455934-85-7 455934-87-9 455934-88-0 455934-89-1 455934-90-4 455934-91-5 455934-93-7 **455934-95-9** **455934-97-1** 455951-19-6 455951-26-5
RL: DEV (Device component use); USES (Uses)
(compns. of **electrolytes** containing liquid crystal compds. for secondary lithium batteries and photoelectrochem. cells)

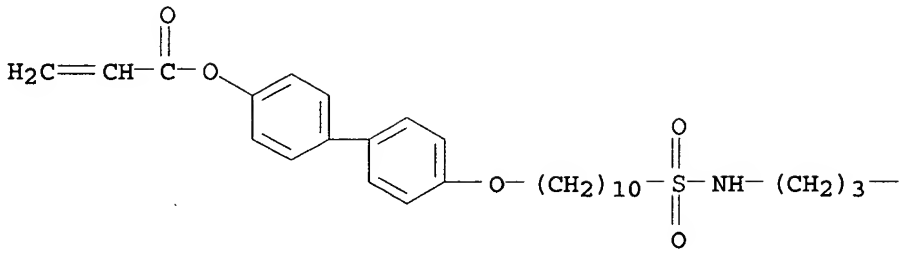
IT **455934-95-9** **455934-97-1**
RL: DEV (Device component use); USES (Uses)
(compns. of **electrolytes** containing liquid crystal compds. for secondary lithium batteries and photoelectrochem. cells)

RN 455934-95-9 HCAPLUS

CN Poly[oxy(dimethylsilylene)], α-[dimethyl[3-[[[10-[[4'-[(1-oxo-2-propenyl)oxy][1,1'-biphenyl]-4-yl]oxy]decyl]sulfonyl]amino]propyl]silyl]-ω-[[dimethyl[3-[[[10-[[4'-[(1-oxo-2-propenyl)oxy][1,1'-biphenyl]-4-yl]oxy]decyl]sulfonyl]amino]propyl]silyl]oxy]-, dilithium salt (9CI) (CA

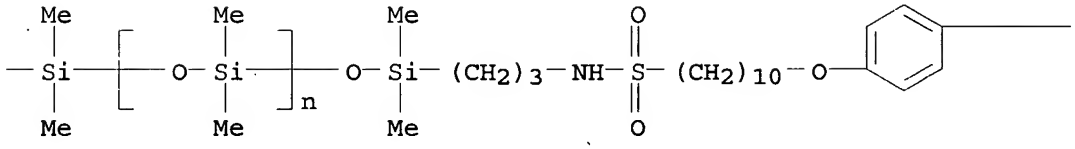
INDEX NAME)

PAGE 1-A

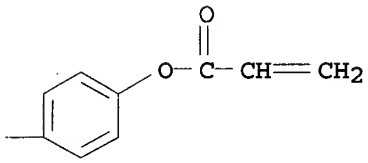


●2 Li

PAGE 1-B



PAGE 1-C



RN 455934-97-1 HCAPLUS
CN 1H-Imidazolium, 1-butyl-3-methyl-, salt with α-[dimethyl[3-[[[10-[[4'-[(1-oxo-2-propenyl)oxy][1,1'-biphenyl]-4-yl]oxy]decyl]sulfonyl]amino]propyl]silyl]-ω-[[dimethyl[3-[[[10-[[4'-[(1-oxo-2-propenyl)oxy][1,1'-biphenyl]-4-yl]oxy]decyl]sulfonyl]amino]propyl]silyl]oxy]poly[oxy(dimethylsilylene)] (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 455934-96-0
CMF (C2 H6 O Si)n C60 H86 N2 O11 S2 Si2
CCI PMS

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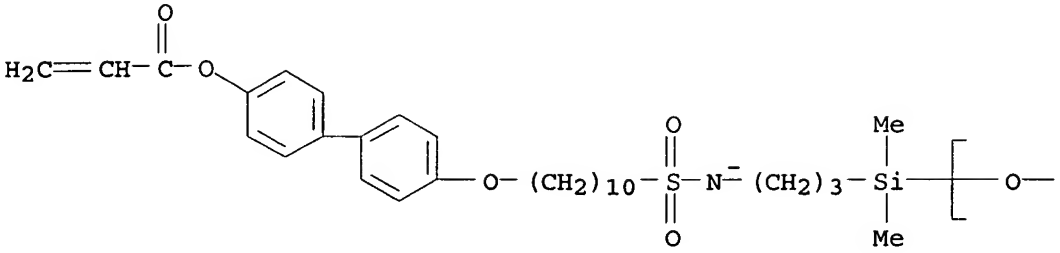

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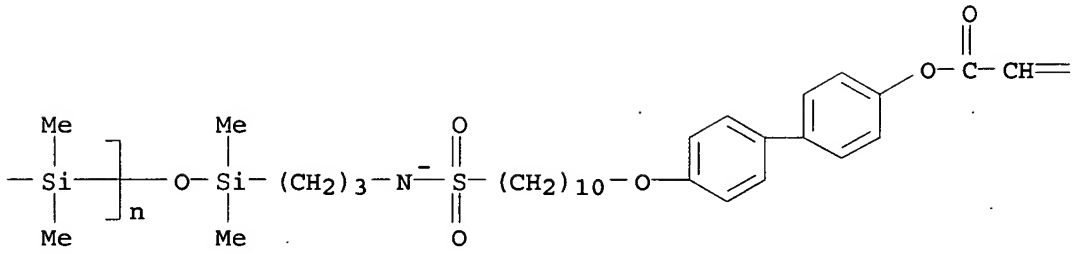
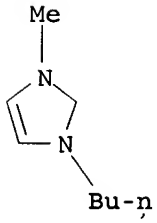


PAGE 1-C

$=CH_2$

CM 2

CRN 80432-08-2
CMF C8 H15 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L34 ANSWER 13 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:409147 HCAPLUS
DN 136:408826
TI Organic electroluminescent devices containing electroconductive organic functional layers with uniform thickness and methods of manufacturing the

devices
IN Okada, Shinjiro; Tsuboyama, Akira; Takiguchi, Takao; Noguchi, Koji; Moriyama, Takashi; Kamatani, Jun; Furugori, Manabu
PA Japan
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002064683	A1	20020530	US 2001-995611	20011129
	JP 2002231448	A2	20020816	JP 2001-361054	20011127
PRAI	JP 2000-362117	A	20001129		

AB Electroconductive devices are described which comprise an insulating substrate, a first electrode disposed on the insulating substrate, a thin layer of a chargeable material disposed in a plurality of regions on the first electrode, a layer of an electroconductive organic function material disposed on the thin layer of the chargeable material, and a second electrode disposed on the layer of the electroconductive organic function material. Processes for producing the electroconductive devices are discussed which entail applying a thin layer of a chargeable material onto a first electrode disposed on an insulating substrate; forming a layer of an electroconductive organic function material on the layer of the chargeable material by immersing the substrate in an electrolytic solution containing ions of the electroconductive organic function material to cause adsorption of the ions of the electroconductive organic function material onto the thin layer of the chargeable material; forming a second electrode on the layer of the electroconductive organic function material.

IC ICM H05B033-12
ICS H05B033-10
INCL 428690000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36, 66, 68, 74, 76
ST org electroluminescent device fabrication uniform thickness adsorption; electroconductive device manufg adsorption chargeable material
IT Electrolytes
(charging material; organic electroluminescent devices containing luminescent
organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)
IT Ink-jet printing
(coating of chargeable material using; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)
IT Adsorption
(layer deposition using; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)
IT Electric conductors
Electroluminescent devices
Electronic device fabrication
(organic electroluminescent devices containing electroconductive organic functional layers with uniform thickness and methods of manufacturing devices)
IT Luminescent substances
(organic electroluminescent devices containing luminescent organic layers with

uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)

IT **153986-30-2**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(anionic **electrolytic** solution containing; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)

IT 50926-11-9, ITO
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(anode; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)

IT 7429-90-5, Aluminum, uses 12615-41-7
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(cathode layer; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)

IT 431063-00-2
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(cationic electrolytic solution containing; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)

IT 2085-33-8, Alq3
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(electron-transporting layer; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)

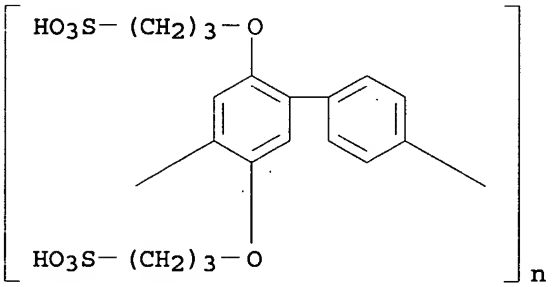
IT 179862-65-8
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(neg. chargeable material; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)

IT 64-19-7, Acetic acid, uses 141-43-5, β-Aminoethyl alcohol, uses
RL: NUU (Other use, unclassified); USES (Uses)
(neutralization using; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by adsorption of electroconductive organic material onto thin layer of chargeable material)

IT 431062-98-5
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(pos. chargeable material; organic electroluminescent devices prepared by adsorption of electroconductive organic material from solution onto thin layer of chargeable material)

IT **153986-30-2**

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(anionic **electrolytic** solution containing; organic electroluminescent devices containing luminescent organic layers with uniform thickness prepared by
adsorption of electroconductive organic material onto thin layer of chargeable material)
RN 153986-30-2 HCAPLUS
CN Poly[2,5-bis(3-sulfopropoxy)[1,1'-biphenyl]-4,4'-diyl disodium salt] (9CI) (CA INDEX NAME)



●2 Na

L34 ANSWER 14 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:768996 HCAPLUS
DN 132:79218
TI Novel cation conductors based on rigid-rod poly(p-phenylene)s
AU Baum, P.; Meyer, W. H.; Wegner, G.
CS Max-Planck-Institute for Polymer Research, Mainz, D-55021, Germany
SO Polymer (1999), Volume Date 2000, 41(3), 965-973
CODEN: POLMAG; ISSN: 0032-3861
PB Elsevier Science Ltd.
DT Journal
LA English
AB Self-assembling of sulfonate- and ethylene oxide-containing poly(p-phenylene)s (PPP) rigid rods was used to obtain layered structures as reinforcing elements separated by a liquid matrix of ethylene oxide (EO) side chains. Lithium salts were dissolved in the layered structure and the ion conductivity of
the resulting polymer **electrolytes** was evaluated. Single-ion conductors with EO-side chains plus Li sulfonate groups attached to the PPP backbones exhibit low conductivity Although the EO-side chain to Li sulfonate molar ratio was chosen so that the O/Li+ ratio is ≈ 25, the d.c. conductivity of the material was approx. two orders of magnitude lower than that of PPP(EO)5/6-lithium triflate blend with the same O/Li+ ratio. The conductivity decreases further when the EO-side chain to sulfonate ratio is decreased. Thus, the increase in the molar concentration of Li sulfonate does not lead to higher conductivity, either because the number of free, i.e. mobile,
charge carriers is decreased or because the mobility of the ionic species is drastically reduced due to the lack of segmental motion of the matrix. Consequently, when the matrix is plasticized by the addition of large amts.

of oligoether, the ionic conductivity increases dramatically and becomes comparable to that of the corresponding multi-ion conducting SPE with the same O/Li+ ratio. The supramol. structures thus achieved are of interest for use as battery separators.

CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 52, 72, 76

ST polyphenylene oligooxyalkylene lithium ion conductor polymer **electrolyte**; **sulfonate** ethylene oxide **polyphenylene** self assembly; ionic cond **polyphenylene** **sulfonate** lithium salt

IT Polymer morphology
(layered structure; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT Supramolecular structure
(liquid phase/rigid phase; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT Electric current carriers
(mobility; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT Polyphenyls
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(oligooxyethylene; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT Polymer chains
(orientation; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT Polymer chains
(packing; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT Electric impedance
Glass transition temperature
Ionic conductivity
Plasticization
Polymer **electrolytes**
Secondary battery separators
Self-assembly
Solubility
(preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT Polymer chains
(side; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT 1310-65-2, Lithium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(cation source; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT 143-24-8, Tetraethylene glycol dimethyl ether
RL: NUU (Other use, unclassified); USES (Uses)
(plasticizer; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT 7439-93-2P, Lithium, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyoxyalkylene-**polyphenylene sulfonate** complexes;
preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT **253876-01-6P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(precursor polymer; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT 33454-82-9P, Lithium trifluoromethanesulfonate **253876-01-6DP**, de-arylated, lithium complexes and free sulfonic acids
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

IT **253876-01-6P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(precursor polymer; preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)

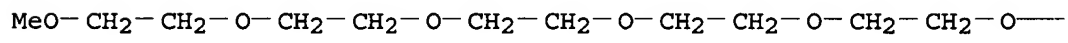
RN 253876-01-6 HCAPLUS

CN Benzenesulfonic acid, 2,5-dibromo-, 3,5-bis(1,1-dimethylethyl)phenyl ester, polymer with 19,19'-[(2,5-dibromo-1,4-phenylene)bis(oxy)]bis[2,5,8,11,14,17-hexaoxanonadecane], 16,16'-[(2,5-dibromo-1,4-phenylene)bis(oxy)]bis[2,5,8,11,14-pentaoxahexadecane] and 2,2'-(1,4-phenylene)bis[1,3,2-dioxaborinane] (9CI) (CA INDEX NAME)

CM 1

CRN 187754-84-3
CMF C32 H56 Br2 O14

PAGE 1-A



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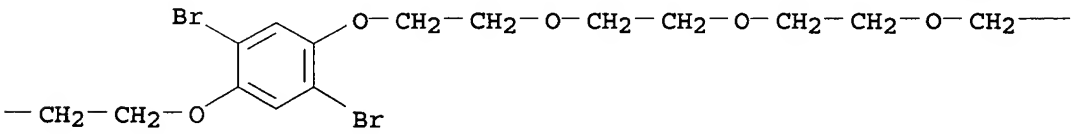

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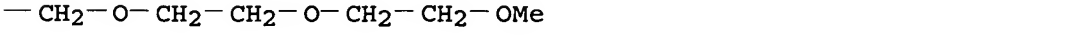
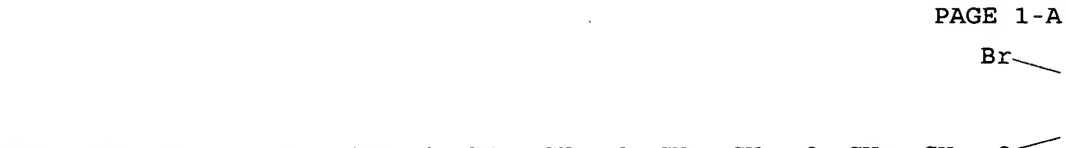


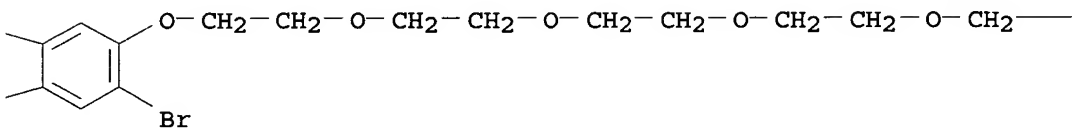
CM 2

CRN 187754-81-0
CMF C28 H48 Br2 O12

PAGE 1-A



PAGE 1-B



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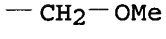
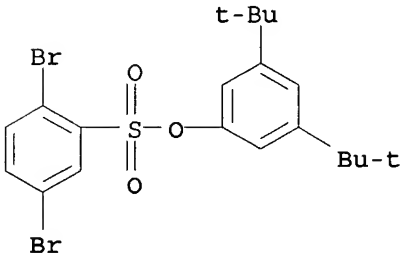


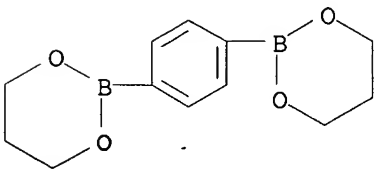
CM 3

CRN 180296-68-8
CMF C20 H24 Br2 O3 S



CM 4

CRN 96433-09-9
CMF C12 H16 B2 O4

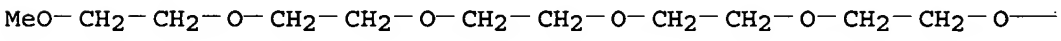


IT **253876-01-6DP**, de-arylated, lithium complexes and free sulfonic acids
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of rigid-rod poly(p-phenylene)s with oligo(oxyethylene) side chains and ionic conductivity of lithium composites for battery separators)
RN 253876-01-6 HCAPLUS
CN Benzenesulfonic acid, 2,5-dibromo-, 3,5-bis(1,1-dimethylethyl)phenyl ester, polymer with 19,19'-[(2,5-dibromo-1,4-phenylene)bis(oxy)]bis[2,5,8,11,14,17-hexaoxanonadecane], 16,16'-[(2,5-dibromo-1,4-phenylene)bis(oxy)]bis[2,5,8,11,14-pentaoxahexadecane] and 2,2'-(1,4-phenylene)bis[1,3,2-dioxaborinane] (9CI) (CA INDEX NAME)

CM 1

CRN 187754-84-3
CMF C32 H56 Br2 O14

PAGE 1-A



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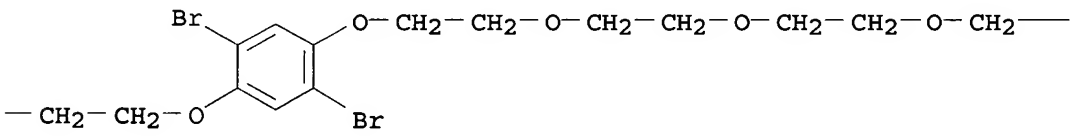

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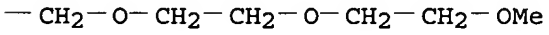
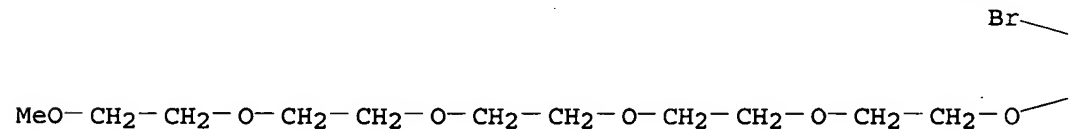


CM 2

CRN 187754-81-0
CMF C28 H48 Br2 O12

PAGE 1-A



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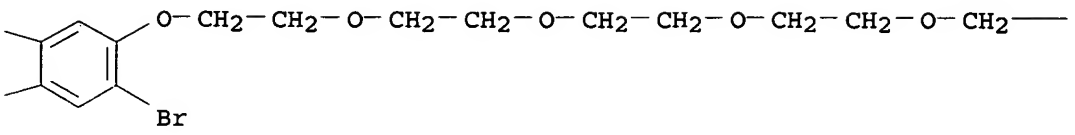

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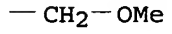
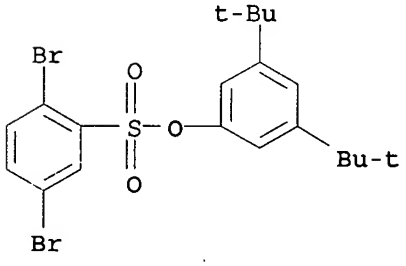


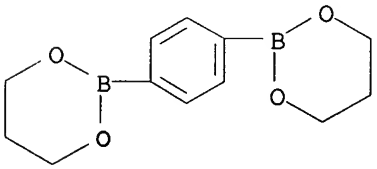
CM 3

CRN 180296-68-8
CMF C20 H24 Br2 O3 S



CM 4

CRN 96433-09-9
CMF C12 H16 B2 O4



RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 15 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:680831 HCAPLUS
DN 132:12699
TI Synthesis and optical properties of poly(p-phenylene) **electrolyte** attached with oligo(ethylene oxide) side chains
AU Kim, Kunsoo; Kim, Jeong Soo
CS Department of Polym. Sci. & Eng., Chungnam National Univ., Taejon, 305-764, S. Korea
SO Polymer (Korea) (1999), 23(5), 731-738

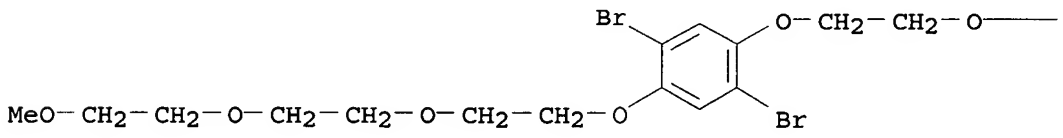
CODEN: POLLDG; ISSN: 0379-153X
PB Polymer Society of Korea
DT Journal
LA Korean
AB In order to synthesize poly(p-phenylene) containing the side chain of oligo(ethylene oxide), the derivs. of dichlorobenzene and dibromobenzene which are attached with oligo(ethylene oxides), were synthesized. The synthesized monomers were polymerized with the catalyst of nickel-complex, and the formation of polymers was confirmed by the spectroscopic method and viscosity measurement. The polymers were characterized using TGA, UV-visible absorbance, photoluminescence, and redox behavior in electrochem. cell.
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 38, 73
ST optical polyphenylene **electrolyte** contg polyoxyethylene; photoluminescence polyphenylene **electrolyte** contg polyoxyethylene
IT Electric current-potential relationship
(light emitting electrochem. cell prepared from polyphenylene **electrolyte** attached with oligo(ethylene oxide) side chains)
IT Electroluminescent devices
(light emitting electrochem. cell prepared from polyphenylene **electrolyte** attached with oligo(ethylene oxide) side chains and)
IT Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(light emitting electrochem. cell prepared from polyphenylene **electrolyte** attached with oligo(ethylene oxide) side chains and)
IT Luminescence
(preparation and optical properties of polyphenylene **electrolyte** attached with oligo(ethylene oxide) side chains)
IT Polyphenyls
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and optical properties of polyphenylene **electrolyte** attached with oligo(ethylene oxide) side chains)
IT 58320-73-3P 62921-74-8P, Triethylene glycol monomethyl ether p-**toluenesulfonate** 79622-11-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in preparation of **polyphenylene electrolytes** containing oligo(ethylene oxide) side chains)
IT 7429-90-5, Aluminum, properties 50926-11-9, ITO
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(light emitting electrochem. cell prepared from polyphenylene **electrolyte** attached with oligo(ethylene oxide) side chains and)
IT 7791-03-9 25322-68-3
RL: TEM (Technical or engineered material use); USES (Uses)
(light emitting electrochem. cell prepared from polyphenylene **electrolyte** attached with oligo(ethylene oxide) side chains and)
IT 251479-83-1P 251479-85-3P 251479-86-4P 251479-87-5P 251479-88-6P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation and optical properties of)
IT **197176-70-8P 251479-89-7P 251479-90-0P 251479-91-1P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and optical properties of)

IT 187754-76-3P 251479-79-5P 251479-80-8P 251479-81-9P 251479-82-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and polymerization of)
IT 98-59-9, p-Toluenesulfonyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with oligo(ethylene oxide))
IT 583-78-8, 2,5-Dichlorophenol 14753-51-6, 2,5-Dibromohydroquinone
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with oligo(ethylene oxide) monomethyl ether toluenesulfonate)
IT 112-35-6, Triethylene glycol monomethyl ether 4437-01-8, Heptaethylene glycol monomethyl ether 9004-74-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(toluenesulfonation of)
IT **197176-70-8P 251479-89-7P 251479-90-0P 251479-91-1P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and optical properties of)
RN 197176-70-8 HCAPLUS
CN Benzene, 1,4-dibromo-2,5-bis[2-[2-(2-methoxyethoxy)ethoxy]ethoxy]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 187754-76-3
CMF C20 H32 Br2 O8

PAGE 1-A



PAGE 1-B

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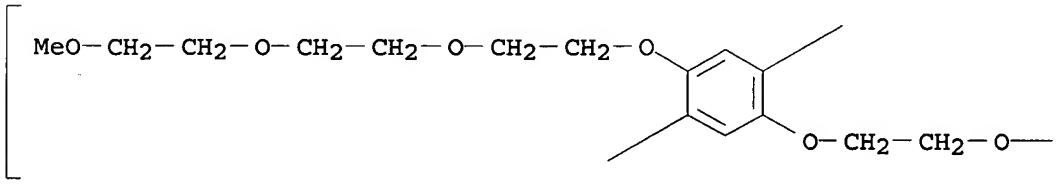
RN 251479-89-7 HCAPLUS
CN Poly[2,5-bis[2-[2-(2-methoxyethoxy)ethoxy]ethoxy]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



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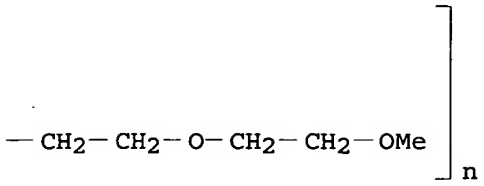
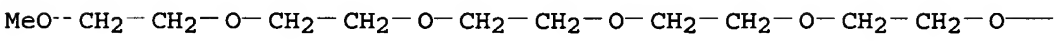


RN 251479-90-0 HCAPLUS
CN 2,5,8,11,14,17,20-Heptaoxadocosane, 22,22'-[(2,5-dibromo-1,4-phenylene)bis(oxy)]bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 251479-79-5
CMF C36 H64 Br2 O16

PAGE 1-A



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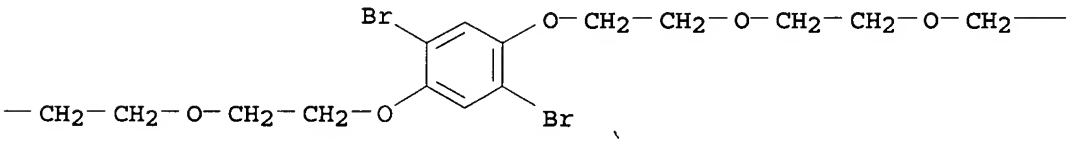

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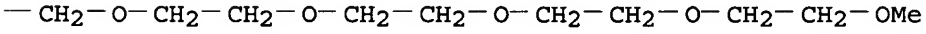
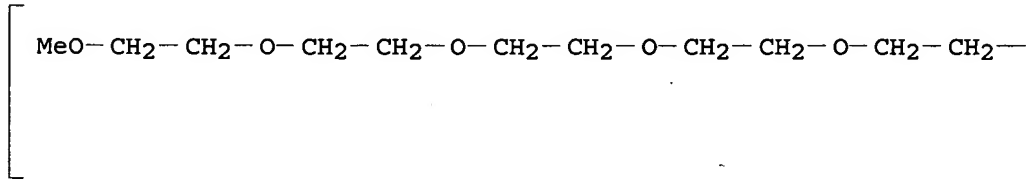


RN 251479-91-1 HCAPLUS
CN Poly[2,5-bis[(3,6,9,12,15,18,21-heptaoxadocos-1-yl)oxy]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



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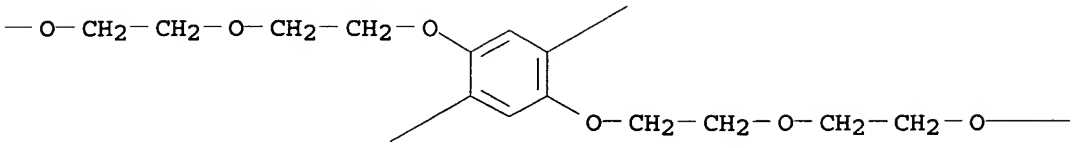

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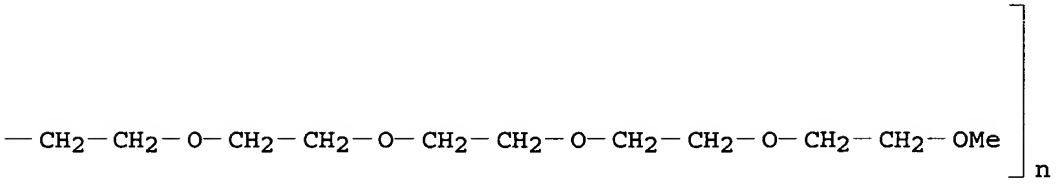


L34 ANSWER 16 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:680636 HCAPLUS
DN 132:12659
TI Light-Emitting Electrochemical Cells from Oligo(ethylene oxide)-Substituted Polythiophenes: Evidence for in Situ Doping
AU Johansson, T.; Mammo, W.; Andersson, M. R.; Inganaes, O.
CS Laboratory of Applied Physics Department of Physics and Measurement Technology (IFM), University of Linkoeping, Linkoeping, S-581 38, Swed.
SO Chemistry of Materials (1999), 11(11), 3133-3139
CODEN: CMATEX; ISSN: 0897-4756
PB American Chemical Society
DT Journal
LA English
AB Electroluminescent (EL) and ion-conducting polythiophenes, poly(3-(2',5'-bis(1'',4'',7''-trioxaoctyl)phenyl)thiophene) (I) and poly(3-(2'',5''-bis(1''',4''',7'''-trioxaoctyl)phenyl)-2,2'-bithiophene) (II) were prepared and evaluated for use in light-emitting electrochem. cells (LEC). The oligo(ethylene oxide)-substituted polythiophenes mixed with a salt simultaneously act as a light-emitting layer and test solid-state electrolyte in LECs. Under an applied bias, p-doping of the electroluminescent polymer takes place at the anode. At the opposite electrode the cathode material is reduced. Since the work function of the electrode material is less important in an LEC, all-polymer devices, with poly(3,4-ethylenedioxythiophene) as anode and cathode, can be built. The doping processes were studied by in situ absorption spectroscopy in both sandwich configuration and on planar electrochem. cells.
CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 74
ST polythiophene ethylene oxide substituent prepn electroluminescence; ionic cond ethylene oxide polythiophene electrolyte; light emitting electrochem cell ethylene oxide polythiophene; photoelectrochem cell polythiophene oligoethylene oxide emitter
IT Polymers, properties
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(conjugated, polythiophenes; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)

IT Redox reaction
(electrochem.; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT Polymer electrolytes
(oxaoctylphenyl-substituted polythiophenes; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT Polymerization
(oxidative; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT Polymers, properties
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(polythiophenes, oxaoctylphenyl-substituted; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT Conducting polymers
(polythiophenes; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT Ionic conductivity
Luminescence, electroluminescence
Photoelectrochemical cells
Work function
(redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT Electrochemistry
(spectroelectrochem.; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT 50926-11-9P, ITO 126213-51-2P, Poly(3,4-ethylene dioxythiophene)
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrode; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT 7791-03-9
RL: DEV (Device component use); USES (Uses)
(electrolyte component; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT 18720-49-5P, tert-Butylammonium perchlorate 33454-82-9P, Lithium triflate
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrolyte component; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT 121284-18-2P, 1,4-Bis(1',4',7'-trioxaoctyl)benzene 223655-06-9P, 2-Bromo-1,4-bis(1',4',7'-trioxaoctyl)benzene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)
IT 223655-07-0P, 3-[2',5'-Bis(1'',4'',7''-trioxaoctyl)phenyl]thiophene
223655-10-5P, 3-[2'',5''-Bis(1''',4''',7'''-trioxaoctyl)phenyl]-2,2'-

bithiophene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(monomer; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)

IT 7705-08-0, Iron chloride (FeCl3), uses
RL: CAT (Catalyst use); USES (Uses)
(polymerization catalyst; redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)

IT 14221-01-3, Tetrakis(triphenylphosphine)palladium
RL: CAT (Catalyst use); USES (Uses)
(redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)

IT **223655-08-1P**, 3-[2',5'-Bis(1'',4'',7''-trioxaoctyl)phenyl]thiophene homopolymer **223655-11-6P**, 3-[2'',5''-Bis(1''',4''',7'''-trioxaoctyl)phenyl]-2,2'-bithiophene homopolymer
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as **electrolyte** and emitter layer in photoelectrochem. cells)

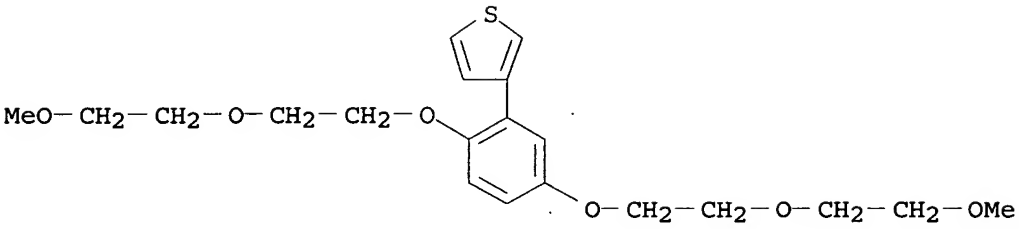
IT 109-72-8, n-Butyllithium, reactions 121-43-7, Trimethyl borate 123-31-9, Hydroquinone, reactions 128-08-5, NBS 6165-69-1, 3-Thiopheneboronic acid 19690-69-8, 3-Bromo-2,2'-bithiophene 52808-36-3, 1-Chloro-2-(2-methoxyethoxy)ethane
RL: RCT (Reactant); RACT (Reactant or reagent)
(redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)

IT **223655-08-1P**, 3-[2',5'-Bis(1'',4'',7''-trioxaoctyl)phenyl]thiophene homopolymer **223655-11-6P**, 3-[2'',5''-Bis(1''',4''',7'''-trioxaoctyl)phenyl]-2,2'-bithiophene homopolymer
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as **electrolyte** and emitter layer in photoelectrochem. cells)

RN 223655-08-1 HCAPLUS
CN Thiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

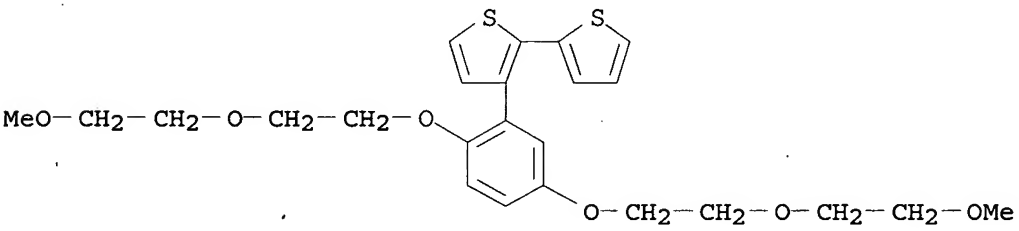
CRN 223655-07-0
CMF C20 H28 O6 S



RN 223655-11-6 HCAPLUS
CN 2,2'-Bithiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 223655-10-5
CMF C24 H30 O6 S2



RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 17 OF 17 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:211141 HCAPLUS
DN 130:352724
TI Structure-property relationships of bis(ethylenedioxythienylnaphthalene) systems
AU Sankaran, Balasubramanian; Tan, Loon-Seng
CS Universal Technology Corporation, Dayton, OH, 45432-2600, USA
SO Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1999), 40(1), 189-190
CODEN: ACPPAY; ISSN: 0032-3934
PB American Chemical Society, Division of Polymer Chemistry
DT Journal
LA English
AB Bis(ethylenedioxythienylnaphthalene) monomers were prepared and electrochem. polymerization was carried out to obtain electroactive conducting polymers. 2,6-**Dihydroxynaphthalene** was treated with **trifluoromethanesulfonic** acid anhydride in pyridine at 0° under argon to yield 2,6-trifluoromethanesulfonylnaphthalene (I); 2-(tributylstannyl)ethylenedioxythiophene (II) was synthesized using n-butyllithium and tributylstannylchloride; I was Still coupled with II in the presence of tetrakis(triphenylphosphine)palladium catalyst in 1,4-dioxane to yield the monomer, 2,6-bis(2-ethylenedioxythienyl)naphthalene (2,6-BEDOT)N. Similar sequence of reactions was used to prepare the other monomers, 1,5-bis(2-ethylenedioxythienyl)naphthalene (1,5-BEDOT)N, 1,5-dimethoxy-2,6-bis(2-ethylenedioxythienyl)naphthalene

(1,5-DM-2,6-BEDOT)N, 1,5-dimethoxy-4,8-bis(2-ethylenedioxythienyl)naphthal ene (1,5-DM-4,8-BEDOT)N, and 1,4,5,8-tetramethoxy-2,6-bis(2-ethylenedioxythienyl)naphthalene (1,4,5,8-TM-BEDOT)N. The monomers were electrochem. polymerized onto gold button or ITO electrodes and the redox behavior of the polymers was studied in monomer-free **electrolyte** solution and in-situ spectro-optoelectrochem. studies were carried out to determine the band gap. The band gap of the conducting polymers ranged from 2.2 eV to 3.4 eV; the (2,6-BEDOT)N polymer has a coplanar geometry, and is less sterically hindered as there are no methoxy groups to add to the strain of the mol. leading to a narrower band gap.

CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 72

ST ethylenedioxythienyl naphthalene monomer prepn electrochem polymn; conducting polymer ethylenedioxythienyl naphthalene band gap; mol structure electroactive polymer ethylenedioxythienyl naphthalene

IT Polymer chains
(conformation; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT Polymerization
Redox reaction
(electrochem.; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT Polymers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polythiophenes, naphthalene-containing; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT Absorption spectra
Band gap
Conducting polymers
Molecular topology
Stille coupling reaction
(preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT Electrochemistry
(spectroelectrochem.; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT **225220-41-7P**, 1,4,5,8-Tetramethoxy-2,6-bis(2-ethylenedioxythienyl)naphthalene homopolymer
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(P(1,4,5,8-TM-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 225220-38-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(P(1,5-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT **225220-39-3P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(P(1,5-DM-2,6-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT **225220-40-6P**, 1,5-Dimethoxy-4,8-bis(2-

ethylenedioxythienyl)naphthalene homopolymer
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(P(1,5-DM-4,8-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 225220-37-1P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(P(2,6-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 14221-01-3, Tetrakis(triphenylphosphine)palladium
RL: CAT (Catalyst use); USES (Uses)
(coupling catalyst; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 225220-36-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(monomer, (1,4,5,8-TM-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 225220-33-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(monomer, (1,5-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 225220-34-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(monomer, (1,5-DM-2,6-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 225220-35-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(monomer, (1,5-DM-4,8-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 225220-32-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(monomer, (2,6-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 109-72-8, n-Butyllithium, reactions 358-23-6, Trifluoromethanesulfonic acid anhydride 581-43-1, 2,6-Dihydroxynaphthalene 1461-22-9, Tributylstannyl chloride 88818-38-6, 4,8-Dibromo-1,5-dimethoxynaphthalene 91394-96-6, 2,6-Dibromo-1,5-dimethoxynaphthalene 123707-36-8, 2,6-Dibromo-1,4,5,8-tetramethoxynaphthalene
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

IT 175922-79-9P 225220-31-5P, 2,6-**Trifluoromethanesulfonylnaphthalene***
**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of bis(***ethylenedioxythienylnaphthalene) monomers and

electrochem. polymerization and band gap-structure relations of electroactive polymers)

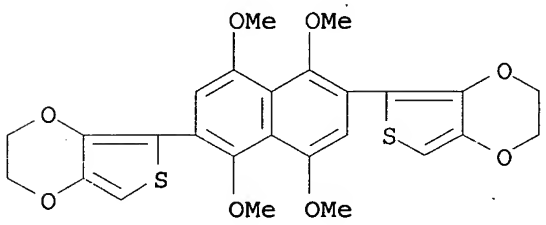
IT **225220-41-7P**, 1,4,5,8-Tetramethoxy-2,6-bis(2-ethylenedioxythienyl)naphthalene homopolymer
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(P(1,4,5,8-TM-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

RN 225220-41-7 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,2'-(1,4,5,8-tetramethoxy-2,6-naphthalenediyl)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225220-36-0
CMF C26 H24 O8 S2



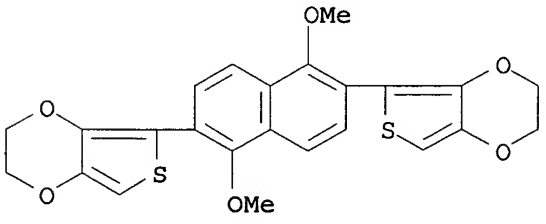
IT **225220-39-3P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(P(1,5-DM-2,6-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

RN 225220-39-3 HCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,2'-(1,5-dimethoxy-2,6-naphthalenediyl)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225220-34-8
CMF C24 H20 O6 S2

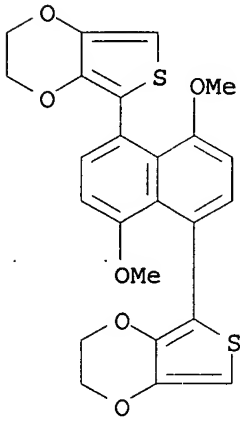


IT **225220-40-6P**, 1,5-Dimethoxy-4,8-bis(2-ethylenedioxythienyl)naphthalene homopolymer
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(P(1,5-DM-4,8-BEDOT)N; preparation of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymerization and band gap-structure relations of electroactive polymers)

RN 225220-40-6 HCAPLUS
CN Thieno[3,4-b]-1,4-dioxin, 2,2'-(4,8-dimethoxy-1,5-naphthalenediyl)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225220-35-9
CMF C24 H20 O6 S2



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> => D QUE
L7 SCR 2043
L12 SCR 1838 AND 2005
L14 SCR 1708
L16 STR

Ak @12

Cb— Cb
@8 @9

G1—O—G2—O—G1
2 3 4 5 6

Ak— SO3H
@10 11

VAR G1=10/12
VAR G2=CB/8-3 9-5
NODE ATTRIBUTES:
CONNECT IS E2 RC AT 10
DEFAULT MLEVEL IS ATOM
GGCAT IS UNS AT 8

GGCAT IS UNS AT 9
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE

L18	26582	SEA FILE=REGISTRY SSS FUL L16 AND L7 AND L12 AND L14
L19	15917	SEA FILE=HCAPLUS ABB=ON L18
L26	8	SEA FILE=HCAPLUS ABB=ON L19(L)?SULFO?(L)ELECTROLYT?
L27	2253	SEA FILE=REGISTRY ABB=ON L18 AND 1-5/S
L28	1338	SEA FILE=HCAPLUS ABB=ON L27
L29	10	SEA FILE=HCAPLUS ABB=ON L28(L)ELECTROLYT?
L30	14	SEA FILE=HCAPLUS ABB=ON L26 OR L29
L31	83833	SEA FILE=HCAPLUS ABB=ON ?SULFO?(3A)(?ARYL? OR POLYPHENYL? OR BIPHENYL? OR PHENYL? OR ?NAPHTHA? OR AROM?)
L32	357	SEA FILE=HCAPLUS ABB=ON L19 AND L31
L33	7	SEA FILE=HCAPLUS ABB=ON L32 AND ELECTROLYT?
L34	17	SEA FILE=HCAPLUS ABB=ON L30 OR L33
L37	576	SEA FILE=HCAPLUS ABB=ON L31(3A)?ETHER?(3A)?ALKYL?
L38	18	SEA FILE=HCAPLUS ABB=ON L37 AND ELECTROLYT?
L39	18	SEA FILE=HCAPLUS ABB=ON L38 NOT L34
L40	8	SEA FILE=HCAPLUS ABB=ON L39 AND ELECTROCHEM?/SC,SX
L41	14	SEA FILE=HCAPLUS ABB=ON L37(L)ELECTROLYT?
L42	7	SEA FILE=HCAPLUS ABB=ON L40 AND L41
L44	3	SEA FILE=HCAPLUS ABB=ON L41 AND ELECTRIC?/SC,SX
L45	9	SEA FILE=HCAPLUS ABB=ON L42 OR L44

Text search

=> D L45 BIB ABS IND HITSTR 1-9

L45 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:98115 HCAPLUS
DN 140:149142
TI Cost-effective solid polymer **electrolyte** membranes, membrane-electrode assembly, and fuel cells
IN Koyama, Toru; Morishima, Makoto; Nishimura, Shin
PA Hitachi Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 27 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004039557	A2	20040205	JP 2002-197696	20020705
PRAI JP 2002-197696		20020705		

AB The membranes, useful for reformed gas-type fuel cells, direct methanol fuel cells, etc., comprise phenolic resins having (CH2)nSO3H (n = 1-3) groups. The phenolic resins may have alkyl ethers of phenolic OH. The polymer **electrolytes** show improved degradation resistance.
IC ICM H01M008-02
ICS B01D053-22; B01D063-08; B01D071-78; C08G008-28; C08J005-22; H01M008-10; C08L061-14
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, **76**
ST solid polymer **electrolyte** alkylenesulfonic phenolic resin; formaldehyde phenol polymer sulfonation **electrolyte** membrane;

membrane electrode assembly fuel cell polymer **electrolyte**;
reformed gas methanol fuel cell polymer **electrolyte**

IT Phenolic resins, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(alkylenesulfonic acid-containing; cost-effective solid polymer **electrolytes** comprising alkylenesulfonic acid-containing phenolic resins)

IT Fuel cell electrodes
Fuel cell **electrolytes**
Ionic conductors
Membranes, nonbiological
Polymer **electrolytes**
(cost-effective solid polymer **electrolytes** comprising alkylenesulfonic acid-containing phenolic resins)

IT Polysulfones, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(phenolic-, sulfo-containing, having alkylenesulfonic acid; cost-effective solid polymer **electrolytes** comprising alkylenesulfonic acid-containing phenolic resins)

IT Phenolic resins, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-, sulfo-containing, having alkylenesulfonic acid; cost-effective solid polymer **electrolytes** comprising alkylenesulfonic acid-containing phenolic resins)

IT Fuel cells
(solid **electrolyte**; cost-effective solid polymer **electrolytes** comprising alkylenesulfonic acid-containing phenolic resins)

IT Phenolic resins, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(sulfo-containing, having alkylenesulfonic acid; cost-effective solid polymer **electrolytes** comprising alkylenesulfonic acid-containing phenolic resins)

IT 9003-35-4DP, Formaldehyde-phenol copolymer, alkylenesulfonic acid-containing 24969-11-7DP, Formaldehyde-resorcin copolymer, alkylenesulfonic acid-containing 25053-88-7DP, p-Cresol-formaldehyde copolymer, alkylenesulfonic acid-containing 25086-36-6DP, m-Cresol-formaldehyde copolymer, alkylenesulfonic acid-containing 25359-91-5DP, Formaldehyde-α-naphthol copolymer, alkylenesulfonic acid-containing 26300-31-2DP, Phenol, 4,4'-methylenedi-, polymer with formaldehyde, alkylenesulfonic acid-containing 26338-61-4DP, Furfural-phenol copolymer, alkylenesulfonic acid-containing 27775-64-0DP, Formaldehyde-4,4'-dihydroxydiphenyl sulfone copolymer, alkylenesulfonic acid-containing 28428-94-6DP, alkylenesulfonic acid-containing 52539-15-8DP, Allyl **phenyl ether**-formaldehyde copolymer, **alkylenesulfonic** acid-containing 106176-86-7DP, alkylenesulfonic acid-containing 146027-49-8DP, Allyl phenol-formaldehyde copolymer, alkylenesulfonic acid-containing 652129-11-8DP, alkylenesulfonic acid-containing 652129-14-1DP, alkylenesulfonic acid-containing
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(cost-effective solid polymer **electrolytes** comprising alkylenesulfonic acid-containing phenolic resins)

L45 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:344956 HCAPLUS
DN 136:378560
TI Application of **alkyldiphenyl ether sulfonates** and **alkyldinaphthalene ether sulfonates**, electrically conductive polymer materials, and solid **electrolytic** capacitors
IN Tatsuzono, Fumio; Hirata, Yoshikazu; Kamikawa, Hidenori
PA Sanyo Denshi Buhin K. K., Japan; Sanyo Electric Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2002128877	A2	20020509	JP 2000-323661	20001024
PRAI JP 2000-323661		20001024		

OS MARPAT 136:378560
AB **Alkyldiphenyl ether sulfonates** and **alkyldinaphthalene ether sulfonates** are useful as dopants for elec. conductive polymers such as polypyrrole, polythiophene, and polyfuran. Elec. conductive polymer materials containing the polymers and dopants, and solid **electrolytic** capacitors using the materials are also claimed. Thus, a polypyrrole film showing elec. resistivity 0.10 and 0.33 Ω-cm initially and after 40-h storage at 150°, resp., was prepared by **electrolytic** polymerization of pyrrole in the presence of disodium dodecyldiphenyl ether disulfonate as a dopant.
IC ICM C08G061-12
ICS H01G009-028
CC 76-10 (**Electric** Phenomena)
Section cross-reference(s): 38
ST alkyldiphenyl ether sulfonate dopant polymeric conductor; **alkyldinaphthalene ether sulfonate** dopant conductive polymer; solid **electrolytic** capacitor polymer conductor dopant; heat resistance elec conductor polypyrrole dopant
IT Heat-resistant materials
(conductive polymers; elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene ether sulfonates** as dopants for solid **electrolytic** capacitors)
IT Dopants
Polymer **electrolytes**
(elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene ether sulfonates** as dopants for solid **electrolytic** capacitors)
IT Conducting polymers
(polyfurans; elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene ether sulfonates** as dopants for solid **electrolytic** capacitors)
IT Ionic conductors
(polymeric; elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene ether sulfonates** as dopants for solid **electrolytic** capacitors)
IT Conducting polymers
(polypyrroles; elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene**

ether sulfonates as dopants for solid **electrolytic** capacitors)

IT Conducting polymers
(polythiophenes; elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene ether sulfonates** as dopants for solid **electrolytic** capacitors)

IT **Electrolytic** capacitors
(solid; elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene ether sulfonates** as dopants for solid **electrolytic** capacitors)

IT 30604-81-0P, Polypyrrole
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene ether sulfonates** as dopants for solid **electrolytic** capacitors)

IT 613-80-9D, 2-Naphthyl ether, alkyl and sulfo derivs., salts 25619-63-0D, sulfonated, sodium salt 28519-02-0, Disodium dodecyldiphenyl ether disulfonate 51506-28-6 163816-26-0, Disodium butyldiphenyl ether disulfonate
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene ether sulfonates** as dopants for solid **electrolytic** capacitors)

IT 25067-54-3, Polyfuran 25233-34-5, Polythiophene
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(elec. conductive polymers using **alkyldiphenyl ether sulfonates** or **alkyldinaphthalene ether sulfonates** as dopants for solid **electrolytic** capacitors)

L45 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:83099 HCAPLUS
DN 124:217991
TI Manufacture of laminated ceramic capacitor
IN Anho, Tamiko; Ootsuki, Etsuo
PA Tokin Corp, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07307241	A2	19951121	JP 1994-124437	19940513
PRAI	JP 1994-124437		19940513		

AB In the manufacture of the capacitor having a 3-layered external electrode (undercoating layer, intermediate layer, outer layer) the intermediate layer of the external electrode is formed by **electrolytic** plating using a solution containing a surface active agent. The surface active agent is selected from **alkylnaphthalenesulfonic** acid salt, **dialkylsulfosuccinic** acid salt, **alkyldiphenyl ether** disulfonic acid salt, **alkylphosphoric** acid salt, and a naphthalenesulfonic acid-formaldehyde condensed compound The

intermediate layer prevents permeation of a plating solution into a capacitor element.
IC ICM H01G004-12
ICS H01G004-252; H01G004-30
CC 76-10 (**Electric** Phenomena)
ST laminated ceramic capacitor external electrode; ceramic capacitor external electrode plating; surface active agent ceramic capacitor
IT Electric capacitors
(laminated ceramic; external electrode formation using plating solution containing surface active agent in manufacture of laminated ceramic capacitors)
IT 1321-69-3D, Sodium naphthalenesulfonate, alkyl derivative 7632-05-5D, Sodium phosphate, alkyl derivative 20526-58-3D, dialkyl derivative 25155-19-5D, Naphthalenesulfonic acid, condensed compound with formaldehyde 51506-28-6D, alkyl derivative
RL: TEM (Technical or engineered material use); USES (Uses)
(external electrode formation using plating solution containing surface active agent in manufacture of laminated ceramic capacitors)

L45 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:733315 HCAPLUS
DN 123:118541
TI Long cycle life and shelf life secondary alkaline batteries
IN Shibata, Yoshiho; Morishita, Nobuyasu; Matsuda, Hiromu; Ikoma, Munehisa
PA Matsushita Electric Ind Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07130392	A2	19950519	JP 1993-271831	19931029
PRAI	JP 1993-271831		19931029		

AB The batteries contains a sulfone group containing surfactant. The surfactant is selected from **alkyl** di-**Ph ether** **disulfonate** salts, **alkyl naphthalenesulfonate** salts, **dialkyl sulfosuccinate** salts, glycol **ether sulfonate** salts, **alkylaryl sulfonate** salts, and polyethylene nonylphenyl ether sulfonate salts; and can be used for hydrophilic treatment of battery separators, added to battery **electrolyte**, or coated on battery anodes. The batteries are preferably Ni/H batteries.
IC ICM H01M010-26
ICS H01M002-16; H01M004-24; H01M010-30
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST nickel hydrogen battery sulfone surfactant
IT Batteries, secondary
Surfactants
(sulfone group containing surfactant additives for nickel/hydrogen batteries)
IT 27154-83-2D, Diphenyl ether disulfonic acid, alkyl derivative, sodium salt
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(sulfone group containing surfactant additives for nickel/hydrogen batteries)

L45 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1992:155452 HCAPLUS
DN 116:155452
TI Sealed lead-acid batteries
IN Hayashi, Toshiaki
PA Japan Storage Battery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 03241671	A2	19911028	JP 1990-37680	19900219
JP 2958790	B2	19991006		
PRAI JP 1990-37680		19900219		

AB The batteries have powdered SiO2 filled in and around their electrode-separator stacks for retaining a H2SO4 **electrolyte** containing an acid-resistant penetrating agent. **Alkyl** di-**Ph ether disulfonates** were used as the penetrating agent in examples. The additives shortens the time required for the impregnation of H2SO4 into SiO2.
IC ICM H01M010-10
ICS H01M010-12
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lead battery **electrolyte** penetration agent; phenyl ether sulfonate lead battery **electrolyte**
IT Penetrating agents
(oxidation-resistant, **alkyl** di-**Ph ether disulfonate**, for sulfuric acid **electrolyte**, in sealed lead-acid batteries)
IT Battery **electrolytes**
(sulfuric acid, **alkyl** di-**Ph ether sulfonate** penetrating agents for)
IT Batteries, secondary
(sealed, lead, penetrating agent-containing sulfuric acid for)
IT 27154-83-2D, alkyl derivs., salts
RL: TEM (Technical or engineered material use); USES (Uses)
(penetrating agent, in sulfuric acid, for sealed lead-acid batteries)

L45 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1987:586012 HCAPLUS
DN 107:186012
TI High-purity **electrolytic** iron
IN Minami, Seiichiro; Kimura, Yoshiaki; Tanaka, Yoshio
PA Showa Denko K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 2 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 62161980	A2	19870717	JP 1986-752	19860108
JP 06053945	B4	19940720		
PRAI JP 1986-752		19860108		

AB A method for preparing high-purity **electrolytic** Fe using a bath containing ferrous ions involves adding surfactant to the bath to control H generation. Optionally, the surfactant may be comprised of Na **naphthalene**-type **sulfonate** or polyoxyethylene

alkyl ether.
IC ICM C25C001-06
CC 72-8 (**Electrochemistry**)
ST **electrolytic** iron surfactant
IT Surfactants
(hydrogen-generation control by, in preparation of **electrolytic** iron)
IT 7439-89-6P, Iron, preparation
RL: PREP (Preparation)
(preparation of, surfactants for **electrolytic**, for hydrogen-generation control)
IT 9008-63-3, Lavelin 69431-55-6
RL: PRP (Properties)
(surfactants, in controlling of hydrogen generation in preparation of **electrolytic** iron)

L45 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1973:437944 HCAPLUS
DN 79:37944
TI Antipitting action of some surface-active agents
AU Parlapanski, M.; Mutafchiev, Ts.
CS Bulg.
SO Godishnik na Visshiya Khimikotekhnologicheski Institut, Sofiya (1971), Volume Date 1969, 16(2), 263-72
CODEN: GVKIAH; ISSN: 0489-6211
DT Journal
LA Bulgarian
AB The surface tension, wetting power, detergent or emulsifying efficiency, and foam forming ability of antipitting additives conventionally used in Ni electroplating baths were investigated to determine which property is responsible for the antipitting effect. All investigations were performed with 0.5 g/l. of the organic additives in a conventional Watts Ni-plating bath using classical methods. The following compds. were tested: sulfonated fatty alcs. (C8-18; **alkylnaphthalenesulfonic** acid; **alkylarylsulfonic** acid; **alkylphenolpolyglycol ether**), Na salt of CM-cellulose, and ammonium salts of sulfonated polyalkylbenzenes. Detailed data are tabulated and compared. The decrease of surface tension at the metal/solution interface does not determine the antipitting activity, since some of the powerful antipitting additives do not alter surface tension at all. Because all investigated additives have in common a drastic increase of the detergent power of the **electrolyte** (up to 2-3 orders of magnitude) the better washing out of organic impurities on the cathode surface decreases the hydrophobic effect, hence no gas bubbles are continuously attached to the metal surface during plating and pitting is suppressed.
CC 77-6 (**Electrochemistry**)
ST antipitting action surfactant; nickel electroplating antipitting agent
IT Sulfonic acids, uses and miscellaneous
RL: USES (Uses)
(alkylaryl and hydroxy, in nickel electroplating, antipitting action of)
IT Polyoxyalkylenes
RL: USES (Uses)
(alkylphenyl ethers, in nickel electroplating, antipitting action of)
IT Surfactants
(in electroplating, of nickel, antipitting action of)
IT 7440-02-0, uses and miscellaneous
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(electroplating of, antipitting action of surfactants in)

IT 25155-19-5D, Naphthalenesulfonic acid, alkyl derivs.
RL: PRP (Properties)
(in electroplating, antipitting action in nickel)
IT 98-11-3D, Benzenesulfonic acid, polyalkyl 2386-53-0 9004-32-4
RL: PROC (Process)
(in electroplating, of nickel, antipitting action of)

L45 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1969:445135 HCAPLUS
DN 71:45135
TI Electrodes for aqueous alkali metal chloride **electrolytes**
IN Lee, Denis
PA Imperial Chemical Industries Ltd.
SO Ger. Offen., 12 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1807150	B2	19770707	DE 1968-1807150	19681105
	GB 1237077	A	19710630	GB 1967-51218	19671110
	US 3592750	A	19710713	US 1968-769377	19681021
	FI 49324	B	19750131	FI 1968-3033	19681025
	BE 723575	A	19690508	BE 1968-723575	19681108
	NL 6815925	A	19690513	NL 1968-15925	19681108
	NL 159145	B	19790115		
	FR 1594758	A	19700608	FR 1968-1594758	19681108
PRAI	GB 1967-51218	A	19671110		

AB A process is described for the preparation of an electrode consisting of a Ti carrier and a Pt coating **electrolytically** deposited upon the Ti. The electrodes so prepared are useful in the electrolysis of aqueous alkali metal chlorides. The process is characterized by the deposition of the Pt in a bath containing 1-2 g./l. of a compound which suppresses the maximum of polarographic waves and which does not react with the Pt compds. in an **electrolytic** bath. The additives can be, for example, agar-agar, gum arabic, high-mol.-weight poly(ethylene glycol), the Na salt of a long chain **alkylbenzenesulfonate** or of an **alkylarylpolyethersul**-fonate.
IC B01K
CC 77 (**Electrochemistry**)
ST electrodes electrolysis Na chloride; electrolysis Na chloride electrodes; titanium Pt electrodes electrolysis; sodium chloride electrolysis electrodes
IT Alkali metal chlorides
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrolysis of, platinum-coated titanium electrodes for)
IT Electrodes
(for alkali metal chlorides, titanium with platinum coating)
IT 7440-32-6, uses and miscellaneous
RL: USES (Uses)
(electrodes, platinum-coated for alkali metal chlorides)

L45 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1948:36104 HCAPLUS
DN 42:36104
OREF 42:7646c-i,7647a
TI **Electrolytic** formation of azo dyes in facsimile recording
IN Solomon, Myer
PA Radio Corp. of America

DT Patent
LA Unavailable
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2440526		19480427	US	

AB Solns. or mixts. are described, consisting of a diazotizable amine (I) and an ionizable nitrite (II) which are adapted for **electrolytic** reaction to produce a diazonium compound, which in turn forms an azo dye by reaction with a coupling component (III) present in the reaction mixture Another object of the invention is the preparation of supporting surfaces or carriers by saturating or impregnating a suitable material (paper, all-rag sheet, etc.) with the appropriate solution, the supporting surface being then adapted for **electrolytic** facsimile recording through azo dye formation. The ingredients of the mixture consist of I, II, an alkali, III, an **electrolyte**, H2O or other solvents in which **electrolytes** ionize, and other minor components. Typical mixts. are (figures in parentheses are amts. of substance per l. of solution): 3,3'-benzidinedisulfonic acid (IV) (6.538 g.), acetoacetanilide (0.354 g.), Schaeffer's salt (0.924 g.), chromotropic salt (V) (4.995 g.), Na dithionite (VI) (0.630 g.), urea (0.600 g.), NaCl (VII) (26.30 g.), NaOH (VIII) (2.44 g.), NaNO2 (IX) (4.14 g.), and the Na salt of an **aryl alkyl polyether sulfonate** (0.8 g.); IV (6.538 g.), V (6.000), barbituric acid (0.512 g.), VI (0.588 g.), dicyanodiamide sulfate (0.316 g.), thiourea (0.076 g.), Na2CO3 (3.721 g.), VII (17.536 g.), VIII (20.0 ml. of 2.5 N) and IX (14.8 ml. of 5.0 M); o-tolidine-2,2'-disulfonic acid (5.054 g.), V (3.640 g.), VIII (52 ml. of 1 N), IX (15 ml. of 2 N), and VII (52.5 g.); Na naphthionate (7.352 g.), phloroglucinol (1.260 g.), VIII (40 ml. of 1 N), IX (15 ml. of 2 N), and VII (58.5 g.); 4-acetylamino-1,7-Cleve's acid (9.228 g.), gamma acid (2.390 g.), VIII (70 ml. of 1 N), IX (15 ml. of 2 N) and VII (25.6 g.). Examples of useful pairs of amines and couplers are 4-aminobenzenesulfonic acid (X) and 1,3,5-trihydroxybenzene (XI), X and Na 2-naphthol-6-sulfonate (XII), X and di-Na 2-naphthol-3,6-disulfonate (XIII), X and di-Na 2-naphthol-6,8-disulfonate (XIV), Na 3-methyl-4-aminobenzenesulfonate and 2-hydroxy-3-naphthoic acid (XV), 4,4'-diamino-2,2,'-biphenyldisulfonic acid (XVI) and XI, XVI and XV, XVI and XII, XVI and XIII, 4,4'-diamino-3,3'-dimethyl-6,6'-disulfobiphenyl (XVII) and 3-diethylaminophenol (XVIII), 4,4'-diamino-5,5'-dimethyl-2,2'-disulfobiphenyl (XVIIA) and XVIII, XVII and XII, XVIIA and XII, XVII and XIII, XVIIA and XIII, Na 1-naphthylamine-4-sulfonate (XIX) and 2,4-dihydroxyphenyl Me ketone, Na 1-naphthylamine-4-sulfonate (XX) and XI, XX and XVIII, XIX and 1-hydroxy-2-naphthoic acid (XXI), XIX and 2-naphthol (XXII), XIX and XII, XIX and 8-hydroxyquinoline (XXIII), 1-naphthylamine-5-sulfonic acid and XXIII, 2-naphthylamine-1-sulfonic acid (XXIV) and XI, XXIV and XXI, XXIV and XXII, XXIV and XV, 2-naphthylamine-4,8-disulfonic acid and XIII, 2-naphthylamine-6,8-disulfonic acid (XXV) and XI, XXV and XVIII, XXV and XXI, XXV and XXII, XXV and XII, XXV and 2-naphthol-8-sulfonic acid, XXV and XIII, and XXV and XXIII. A pH of 9-11.5 is preferred since the color intensity is not sacrificed unduly for gain in background permanence. V is considered to be the best all-round coupling compound Cf. C.A. 37, 2999.5; 42, 4072i.

CC 4 (**Electrochemistry**)

IT Dyes
(azo, **electrolytic** formation in facsimile recording)

IT Recording
(facsimile, with azo dyes)

IT Pyrimidine, 2-(6-bromo-2-naphthylamino)-4-(2-diethylaminoethylamino)-6-methyl-, dihydrochloride

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